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ABSTRACT

This report presents findings of a 5-year study on the transition of youth with disabilities from secondary school to early adulthood. The study included more than 8,000 youth with disabilities who were aged 13 to 21 and receiving special education in 1985-86. It examined experiences of the students in education, employment, and personal independence. Data included interviews with students' parents in 1987, analysis of school records, and a survey of educators, followed up by 1989 interviews with a subsample of 800 parents and/or youth. An executive summary reports major findings addressing: characteristics of youth with disabilities, secondary school programs of students in regular schools, secondary school programs of students in special schools, secondary school performance, secondary school completion, social integration, personal and residential independence, employment, enrollment in postsecondary schools, engagement in productive activities outside the home, youth with emotional disturbances, youth with visual impairments, severely impaired youth, young women with disabilities, the economically disadvantaged, the link between secondary school and postschool outcomes, occupationally oriented vocational training, regular education placements, work experience during high school, and social activities. The report provides narrative analysis and many tables detailing findings in 11 chapters: "Introduction" (Mary Wagner); "More Than a Label: Characteristics of Youth with Disabilities" (Camille Marder and Robert Cox); "Secondary School Programs" (Mary Wagner); "Secondary School Performance" (Mary Wagner); "Sticking It Out: Secondary School Completion" (Mary Wagner); "Social Activities" (Lynn Newman); "Growing Up, Moving On: Aspects of Personal and Residential Independence" (Lynn Newman); "The Working World Awaits: Employment Experiences during and Shortly after Secondary School" (Ronald D'Amico); "Enrollment in Postsecondary Schools" (Paul Butler-Nalin and Mary Wagner); "A Broader Look at Outcomes: Engagement in Productive Activities after Secondary School" (E. Deborah Jay); and "Reflections" (Mary Wagner.) Five commentaries by leading professionals (Alan Abeson, Bud Fredericks, Teresa Middleton, Irving Kenneth Zola, and Jeffrey V. Osowski) and four appendixes conclude the report. References are provided for most chapters. (DB)

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YOUTH WITH DISABILITIES: HOW ARE THEY DOING?

The First Comprehensive Report from the National Longitudinal Transition Study of Special Education Students

September 1991

Prepared for:

The Office of Special Education Programs
U.S. Department of Education

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Prepared for:

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EXECUTIVE SUMMARY

Concern for the obstacles young people with disabilities face as they try to make a successful transition from secondary school to adulthood has focused a spotlight on transition issues, transition programming, and transition research. Much of the resulting federal, state, and local policymaking and program development has gone on in the absence of fairly basic information on the nature and scope of the transition problems youth with disabilities have nationally. In 1983, the U. S. Congress mandated that the U. S. Department of Education commission a national study of the transition experiences of youth with disabilities in secondary school and beyond. In 1985, under contract to the U. S. Office of Special Education Programs, SRI International began to develop the design, sample, and data collection instruments for such a study. Under a separate contract, SRI initiated the National Longitudinal Transition Study of Special Education Students (NLTS) in 1987.

Study Overview

The NLTS includes more than 8,000 youth who were ages 13 to 21 and secondary school students in special education in the 1985-86 school year. The sample is nationally representative and permits generalizations to youth as a whole, as well as to youth in each of the 11 federal special education disability categories. Experiences of youth are described in three crucial domains:

- *Education.* What were the secondary school programs and experiences of youth with disabilities? How did they do in school? In what ways did they leave school? In what kinds of postsecondary schools did they enroll?
- *Employment.* To what extent did youth with disabilities find jobs during and after secondary school? What did they do? What did they earn?
- *Personal independence.* How socially integrated were young people with disabilities? Were they mastering tasks required for personal independence? Were they establishing independent living situations after secondary school?

In addition to these descriptive issues, explanatory questions are being asked. What kinds of youth were succeeding in these domains; what kinds of youth were struggling? What school factors were associated with greater rates of success in school, in the working world, and in achieving independence?

To address these questions, the NLTS conducted telephone interviews with parents, abstracted information from students' school records for their most recent year in secondary school, and surveyed educators in the schools attended by sample students. In 1989, this extensive database was supplemented with data from interviews for a subsample of more than 800 parents and/or youth who were classified as learning disabled, speech impaired, emotionally disturbed, or mildly/moderately mentally retarded and who at that time had been out of secondary school between 2 and 4 years. *Youth with Disabilities: How Are They Doing?* is a comprehensive report of analyses of 1987 and 1989 data. (Additional data from 1990-91 will be reported in subsequent documents.)

Major Findings

Characteristics of Youth with Disabilities

The kinds of disabilities students have and their severity both are important influences on students' experiences and outcomes. More than half of youth who were students in secondary special education in the 1985-86 school year were classified by their schools or school districts as learning disabled, and another 1 in 4 were classified as mentally retarded. Along with the 10% of students with emotional disturbances, these categories accounted for most secondary students in special education. Beyond their primary disabilities, almost 1 in 5 youth were reported to have an additional disability that further challenged them educationally. Basic functional mental skills were difficult for many youth. Parents of only 57% of youth rated as high their ability to perform basic functional mental tasks, such as reading signs and counting change; percentages ranged from 68% of youth with speech impairments to one-third of those with mental retardation and 7% of those who were deaf/blind. The average IQ score was 79, with a range from 93 for deaf youth to 50 for those who were deaf/blind.

Youth with disabilities differed from their nondisabled peers in ways other than their disabilities. Males predominated among youth with disabilities, being the majority in all disability categories except deaf/blind and outnumbering females by 3 to 1 in the learning disabled and emotionally disturbed categories. Because young men and women often have markedly different transition experiences, the predominance of males, particularly in some categories, is an important context for interpreting their outcomes. Further, the percentage of youth with disabilities who were black was about twice as high as the percentage in the general population. Youth with disabilities were more likely than the general population of youth to come from households that were poor, headed by a single parent, and not living in a suburban community. Factors such as these have long been shown to present their own challenges to achievement in school and beyond.

Secondary School Programs of Students in Regular Schools

More than 90% of students in secondary special education attended regular schools with nondisabled students in their most recent school year. Of regular school students selected for the NLTS sample in the 1985-86 school year, the majority (70%) were in high schools by 1986-87. About 8% of students attended middle schools, and 1 in 5 students attended schools serving another combination of grades. Schools generally were large; high schools averaged 1,151 students, although middle schools and schools serving other grade-level combinations were somewhat smaller. On average, secondary special education students were about 9% of the schools' student bodies, and they tended to cluster in schools with other students with the same disabilities.

In their regular secondary schools, special education students generally had access to life skills and vocational programs that might help to prepare them for the transition to adulthood, although access was not equally distributed. About 9 of 10 students had access to life skills training (although that training generally did not include community-based experiences). Job counseling and job readiness programs also were reported to be available in schools attended by 9 of 10 students, whereas job placement and work experience programs were available in schools attended by about 6 of 10 students. But programs were not likely to be available to students until they reached senior high school grade levels, and even in the upper grades, many students did not have access to the programs the NLTS examined. For example, 1 in 5 students in 12th grade did not have access to school-sponsored job skills training. Programs were least likely to be available to students who were not assigned to a specific grade level, students who tended to be more severely impaired than students at specific grade levels.

Beyond questions of program access, the courses actually taken by students tended to include a mix of academic, vocational, and nonacademic classes. Among students in most disability categories, more than 90% took at least one academic course in their most recent school year. The average academic course load was 4 courses per week, although academic courses were a larger part of the day for students in the lower grades than in 11th or 12th grade, when vocational courses played a bigger role. Almost two-thirds of students with disabilities took at least one vocational education course in their most recent school year (either prevocational, occupationally specific, or home economics), usually one such course per week. Among students taking vocational education, 86% took training in a specific labor market area. However, young women who took vocational courses were significantly less likely than males to have their vocational courses be occupationally specific. Women also were more likely to have their training be in office occupations or food or personal services, whereas men concentrated in construction and machine trades.

The large majority of students with disabilities (86%) took at least some of their courses in regular education classes. The average amount of class time in regular education was 56%, although this percentage ranged widely, from 77% for students with speech impairments to 19% for students with multiple handicaps. Overall, 17% of students took all of their courses in regular education classes, including 5% of students who had been in special education in the 1985-86 school year but had since been declassified.

Variation in the amount of time spent in regular education classes was attributable largely to disability-related factors, as intended by law. However, more time was spent in regular education classes by students who were from higher-income households and by those who were younger, irrespective of disability factors. Significant regional differences also were apparent. Students spent significantly more time in regular education, independent of other factors, if they took occupationally specific vocational training or nonacademic classes or if they attended schools that reported having particular policies supporting mainstreamed students and their regular education teachers.

To support their educational programs, about half of secondary students with disabilities were reported to have received from their schools speech therapy, occupational therapy, personal counseling, help from a tutor/reader/interpreter, or physical therapy/mobility training. However, each service was provided to only a minority of youth. For example, personal counseling was provided by schools to 16% of youth with disabilities as a whole, and to 36% of youth classified as emotionally disturbed. Speech therapy was reportedly provided to 18% of students with disabilities as a whole, and to 54% of those classified as speech impaired.

Secondary School Programs of Students in Special Schools

In examining the school programs of students in special schools, the NLTS has focused on students in the three disability categories with the highest proportion of students attending special schools—deaf, visually impaired, and multiply handicapped—comparing those who attended special schools with those enrolled in regular schools.

Special schools generally served students who were more severely disabled and economically disadvantaged than regular school students in the selected disability categories. Special schools also featured significantly fewer students and students who were much more likely to represent the full age span of elementary and secondary grades than did regular schools. Sensory impaired students attending special schools were more likely to have a greater percentage of their fellow students come from low-income households than were similar students who attended regular schools.

Compared with regular schools, special schools emphasized vocational and life skills training over academics. They were much more likely to make such programs available, to make them available in earlier grades, and to include a greater emphasis on community-based experiences in them. Consequently, special school students were more likely than regular school students with the same kinds of disabilities to participate in vocational courses and less likely to have taken academic courses in their most recent school year. Perhaps reflecting their generally more severe disabilities, special school students were more likely to have received personal counseling, occupational therapy or life skills training, or physical therapy/mobility training from their schools in their most recent school year.

Secondary School Performance

The NLTS has considered four aspects of students' performance in their most recent school year: absenteeism, grades, minimum competency test performance, and being retained at grade level. By these measures, many secondary students with disabilities were having a difficult time in school. Students averaged 15 days absent per year, and one-third failed at least one course in their most recent school year. Fewer than half of students who took minimum competency tests passed all of the test, and almost 1 in 10 students who remained in school were retained at their grade level at the end of the school year. Absenteeism, course failure, and retention were significantly more common for youth in some disability categories, particularly those classified as emotionally disturbed. Absenteeism was highest and grade performance lowest among 9th-graders.

These aspects of school performance were strongly related. High absenteeism was strongly related to a higher probability of course failure. Together, course failure and higher absenteeism were powerful predictors of grade retention. However, student characteristics, such as age, gender, and ethnicity, also related significantly to various measures of student performance, as did behavioral factors, such as the absence of social bonds reflected in lack of affiliation with school or community groups, and the tendency to get into conflicts that resulted in disciplinary actions. Further, findings suggest that there is potential for schools to shape educational experiences for students with disabilities in ways that will support them in coming to school and achieving in school. Occupational training is one example of an educational intervention that related significantly in the desired way to several measures of students' school performance.

Secondary School Completion

More than half of youth with disabilities who left secondary school in a 2-year period did so by graduating (56%), and three-fourths of those graduates were reported by their schools to have been awarded regular diplomas. Almost one-third of school leavers with disabilities dropped out of school (32%), a significantly higher dropout rate than for the general population of youth. The dropout rate was highest for youth with emotional disturbances (50%) and lowest for students who were deaf/blind (8%). For many youth, dropping out appears to have been a continuation of a cluster of student behaviors that included failing courses, high absenteeism, disciplinary problems, and lack of social affiliation with school or community groups. More than 1 in 5 female dropouts left school because of marriage or pregnancy. Once students dropped out of school, they were unlikely to continue their secondary educations in the subsequent 2 years.

NLTS findings suggest that early school leaving is not impervious to influence by the schools. Enrollment in occupationally oriented vocational education and receipt of tutoring assistance and personal counseling each were significantly related to a lower probability of dropping out of school. Combined with school factors that were related to better grade performance and lower absenteeism, with their indirect relationships to lower dropout rates, there appear to be several leverage points offering the potential for reducing the rate at which students drop out of school.

Social Integration

The NLTS has examined several aspects of the social activities of youth with disabilities—their frequency of seeing friends, memberships in school and community groups, and for youth no longer in secondary school, marriage. It also considers the flip side of social integration, the extent to which young people with disabilities were reported by parents ever to have been arrested.

- *Friendship interactions.* A small proportion of students (14%) were reported by parents to be relatively socially isolated, either never seeing friends or seeing them less than once a week. Social isolation was more common among students who were lower functioning and more severely disabled, female, older than their peers, and taking fewer regular education classes, other factors being equal. Rates of social isolation were similar for secondary school students and those recently out of school, but increased significantly as the length of time since leaving secondary school increased.

  Among students who saw friends at least weekly, almost 40% socialized 6 or more days a week. Youth with emotional disabilities, males, and students who had had disciplinary problems were significantly more likely than others to see friends often. The frequency of seeing friends was relatively stable in the first 2 years after high school. As the length of time since leaving secondary school increased, significantly fewer youth saw friends often.

- *Group memberships.* Overall, 41% of secondary school students were reported by parents to have belonged to a school or community group in the preceding year, although group participation was significantly less common among students categorized as multiply handicapped, mentally retarded, or emotionally disturbed. Students from lower-income households, those attending urban schools, those who were older than their peers, and youth who exhibited asocial behaviors were less likely to belong to groups when disability, demographic, and school factors were controlled. Students who spent more time in regular education classrooms were more likely to be group members, even when controlling for severity of disability. Rates of group membership for youth who were out of secondary school were about half the rates of those still in school (20% vs. 41%). Rates continued to decline marginally in the subsequent 2 years for youth in selected disability categories.

- *Marriage.* Few youth who had been out of school up to 2 years were married or living with someone of the opposite sex (6%). Two years later, among youth in selected disability categories, 17% were married or living with someone of the opposite sex. Youth with milder impairments were more likely to be married, as were young women with disabilities and those who had dropped out of high school.

- *Arrest rates.* More than 1 in 10 youth with disabilities (12%) were reported by parents to have been arrested; rates were 9% for secondary school students and 19% for youth out of school up to 2 years. Among youth in selected disability categories who had been out of school between 2 and 4 years, another 7% had been arrested for the first time in the preceding 2 years. Much of the arrest rate for youth with disabilities was attributable to youth who were classified as emotionally disturbed. Males, minorities, and those from single-parent households also were significantly more likely to have been arrested, other factors being equal.

  We find a cluster of poor transition outcomes occurring for youth who had at some time been arrested. They were significantly more likely to be absent from school frequently, to receive failing course grades, and to drop out of school than youth who had never been arrested. They also were much more likely to see friends frequently and much less likely to belong to organized school or community groups.

Personal and Residential Independence

The NLTS has focused on several issues regarding youths' personal independence, including a variety of household maintenance skills, financial management activities, and living arrangements.

- *Household care activities.* Youth with disabilities generally were quite involved in household responsibilities. A large majority of youth in most disability categories were reported by parents to perform each of four chores investigated by the NLTS at least "sometimes." The exception was that half or more youth with physical or multiple handicaps rarely did household chores. Females and older youth were more frequently responsible for household chores, regardless of disability category. Black youth and those from single-parent households also were significantly more likely than others to do household chores often.
- *Financial Management Activities.* The majority of out of school youth with disabilities did not use common financial management tools. Having a savings account was the most frequent activity, yet fewer than half of the youth had them; fewer than 1 in 10 had checking accounts or credit cards in their own name. Less severely disabled youth were much more likely to use each of these financial management tools. Youth from more affluent households were more likely to have savings accounts, and working youth were more likely to have savings accounts or credit cards. Considerably more youth in selected disability categories had checking accounts or credit cards when they had been out of school 2 to 4 years than had them when they had been out of school less than 2 years.
- *Residential independence.* Most youth with disabilities lived with a parent or legal guardian. Among secondary school students, the minority who were not living with a parent still were likely to be living in a family setting—with an aunt, uncle, grandparent, or adult sibling.

  In the first 2 years after high school, 12% of youth with disabilities were reported by parents to be living independently (alone, with a spouse or roommate, in a college dormitory, or in military housing). Youth classified as learning disabled, visually impaired, deaf, or hard of hearing were the most independent, whereas those classified as orthopedically or multiply impaired (including deaf/blind) or mentally retarded were the least likely to be living independently. Financial independence related to residential independence, which was more common among youth who were working and who earned higher wages. There also was a higher rate of independent living among youth who had been out of school longer, with more than one-third of youth in selected disability categories living independently when they had been out of secondary school 3 to 4 years. Looking to the future, parents of about three-fourths of youth still living at home expected the youth eventually would live away from home, on their own, without supervision. However, almost half of youth with mental retardation or orthopedic or other health impairments, and three-fourths of those with multiple handicaps were expected to require a supervised living arrangement in the future.

Employment

Many students with disabilities were gaining work experience during secondary school. Parents reported that 15% of students with disabilities in grades 7 through 11 had had work-study jobs in the preceding year, and more than half (56%) had had paid jobs of some kind, a rate quite similar to figures for youth as a whole. Students classified as learning disabled or emotionally disturbed had among the highest rates of paid employment; work-study jobs were more common for youth classified as mentally retarded, deaf, or multiply handicapped. Work-study employment was almost equal among males and females, but males were much more likely to have had paid jobs of any kind (61% vs. 46%). Employment was more common among youth at higher grade levels.

Students were gaining work experience primarily in lower-skill jobs. More than 1 in 4 students worked as laborers, including lawn mowing, grounds keeping, and general construction; they also were concentrated in service occupations, including janitors/maids, food service workers, and babysitters. One in 4 students worked full time (many were reporting about summer jobs). Typical earnings were at or below the federal minimum hourly wage.

Although students with disabilities seemed to work at about the same rate as their nondisabled peers, among out-of-school youth, 46% were reported by parents to be employed in the summer of 1987, a rate markedly lower than for youth in the general population (59%). However, many more youth with disabilities had been employed at some time in the preceding year (70%) than were currently employed, and employment rates showed steady gains between 1987 and 1989 for youth in selected disability categories who had been out of school between 2 and 4 years.

Employment was more common among youth with higher functional abilities and among males, younger exiters, suburban residents, and those from households with higher incomes. Secondary school experiences also were important; independent of other factors, youth who graduated from high school, took vocational education in their last year in high school, or had work experience as part of their vocational training were significantly more likely than other youth to be competitively employed after high school.

Among employed out-of-school youth, 40% worked part time; workers had spent an average of 9 months with their current employer. The median wage was $3.95 per hour, with wages being lower for part-time workers ($3.45) than for full-time workers ($4.00). Young women with disabilities were nearly twice as likely as men to be earning the minimum wage or less and working in service occupations. Young men with disabilities did not differ greatly from their nondisabled peers in their occupational distribution or earnings. However, young women with disabilities were concentrated more in service occupations and less in clerical occupations than women in the general population.

Enrollment in Postsecondary Schools

Despite increasing opportunities for youth with disabilities to pursue education after high school, only 14% of youth who had been out of secondary school up to 2 years had enrolled in postsecondary schools in the preceding year. Enrollment rates were highest for youth who were deaf or visually impaired (about one-third of youth) and lowest for youth classified as mentally retarded, multiply handicapped, or deaf/blind (fewer than 10%). Enrollment rates increased somewhat with the passage of time since leaving high school; by the time they had been out of school 3 to 4 years, 1 in 4 youth in selected disability categories had attended a postsecondary school since high school.

The postsecondary school enrollment rate for youth with disabilities was significantly below the rate of 56% for students in the general population. In light of the fact that high school graduates with disabilities enrolled in postsecondary schools considerably more often than nongraduates (21% vs. 6%), the lower secondary school graduation rate of special education students may partially explain why they enrolled in postsecondary schools so much less often than students as a whole.

Postsecondary vocational/trade schools were the most commonly attended by youth with disabilities (9%). Only 4% attended a 2-year or community college, and 1% attended a 4-year college. Disability-related characteristics were significantly related to 4-year college attendance, as were measures of students' socioeconomic status. However, these factors were not significant predictors of other kinds of postsecondary school enrollment, indicating that 2-year colleges and vocational/trade schools were more accessible to a greater breadth of students. Independent of disability characteristics and other factors, students who took occupationally oriented vocational education and who spent a greater percentage of class time in regular education classes in their last year in high school were more likely to have pursued their educations after high school.

Engagement in Productive Activities Outside the Home

The NLTS has looked at the concept of a successful transition with a wider lens than has been used in much of the existing research, going beyond separate analyses of employment or postsecondary education to embrace a broader concept: engagement in productive activities outside the home. Youth were considered to be productively engaged if they had participated in the preceding year in a job skills training program, a GED program, a vocational or trade school, a 2-year or 4-year college, or paid or volunteer work outside the home.

Twenty-two percent of youth with disabilities who had been out of secondary school between 1 and 2 years had not been engaged in any of these education- or work-related activities in the preceding year. Among those who were productively engaged, paid employment was the most common activity; 93% of engaged youth had worked for pay in the preceding year. Engagement was most common for youth who were hard of hearing, learning disabled, or deaf, and lowest for those with multiple handicaps. Functional abilities, socioeconomic status, gender, and marital status were important determinants of engagement rates. High school graduates and youth who had taken occupationally oriented vocational education in their last year in high school also were significantly more likely to be productively engaged.

Unfortunately, levels of productive engagement did not improve markedly as more time elapsed since youth left high school. Among youth in selected disability categories, two-thirds were engaged when they had been out of school 1 to 2 years, and 77% were engaged 2 years later. Almost 6 of 10 youth were engaged at both times and 15% were not engaged at either time. Substantial differences in gender were apparent in how nonengaged youth spent their time; more than half of nonengaged young women were involved in home or child care, while the same proportion of nonengaged males were involved in recreation, visiting friends, or "hanging out."

Reflections

Youth with Disabilities: How Are They Doing? has looked at the transition experiences of youth with disabilities in secondary school and in the early years afterward in light of specific outcomes, as summarized above. The NLTS also has looked across outcome areas to synthesize what has been learned and to suggest themes or stories that emerge only when findings from various chapters are combined. In doing so, significant achievements for many youth are found. However, there is a flip side to these achievements, and it is sobering. A sizable percentage of youth failed courses in school, dropped out of school, were not well integrated socially, or failed to become engaged in productive activities after secondary school.

The experiences of the general population of young people is one yardstick against which to interpret these outcomes. By this standard, youth with disabilities as a whole were doing poorly. However, the NLTS continually notes the extreme diversity of experiences among youth with disabilities. A comparison of youth with disabilities and youth in general masks this variation and obscures the successes that are apparent. To understand the experiences of youth with disabilities, one must look at their diversity. Youth with special needs includes many different groups, each of which has its own set of special needs. Summarized below are the findings for several groups that have emerged as in reflecting on the information the NLTS has generated thus far.

Youth with Emotional Disturbances

Youth classified as emotionally disturbed demonstrated a pattern of disconnectedness from school. They often were absent from school, and only about 1 in 3 were affiliated with school or community groups. They had lower grade point averages than youth in other categories and were more likely to have failed courses and to have been retained in grade at the end of the year. This disconnectedness and academic failure culminated in youth with emotional disturbances having the highest dropout rate of all youth with disabilities.

For some youth classified as emotionally disturbed, the inability to develop social bonds or adapt to social norms spilled over into other aspects of their lives. One in 5 secondary school students had been arrested; among youth out of school, this percentage was 35%, the highest of any group of young people. Those with emotional disturbances also continued to be the least likely to belong to social or community groups after high school.

However, for many youth classified as emotionally disturbed, when one looks at aspects of life other than schooling, the dramatic differences between them and other youth moderate significantly. Youth with emotional disturbances had among the highest employment rates while in school and earned wages comparable to those of youth with learning disabilities, for example. After high school, they were as likely as other youth with disabilities to be working, to be working for comparable wages, and to be living independently. As the years passed after high school, rates of competitive employment continued to increase, though in small increments.

One must wonder at the disjuncture between the performance of these youth in school and in other aspects of their lives. What was it about the match, or mismatch, between the needs and characteristics of these youth and the expectations and programs of the schools that made for such pronounced disconnectedness, academic failure, and drop out behavior? Further research on youth with emotional disturbances and their school experiences clearly is needed.

Youth with Visual Impairments

In contrast to youth with emotional disturbances, most young people with visual impairments appear to have been succeeding in school. Visually impaired youth were most likely to be in programs that focused on academics; they were educated largely in the mainstream, and they had among the lowest course failure rates and dropout rates of youth in any disability category. This relative success in secondary school was mirrored in higher postsecondary attendance rates.

However, the working world was not similarly rewarding for many youth with visual impairments. Only 23% of non-college-bound visually impaired youth had competitive paid jobs shortly after high school, half the employment rate of youth with disabilities as a whole. Visually impaired workers were significantly more likely than others to be paid at or below minimum wage. Although high school graduation related significantly to a higher likelihood of employment, high employment rates were not found for visually impaired youth, despite their high graduation rates.

Apparently, young people with visual impairments were having trouble parlaying their strong school performance into lucrative places in the work force. What obstacles to success were they encountering in the labor force that they did not encounter in school? Although much has been learned about the transition experiences of this group of young people, additional questions have been raised that should help shape future research agendas.

Severely Impaired Youth

Throughout this report, the NLTS has demonstrated the devastating corollaries of severe disabilities. Only 4% of youth were reported by parents to perform basic self-care skills poorly. Only 8% were reported to perform functional mental skills poorly. Only 8% had IQ scores below 50. Although these are small minorities of young people, the severity of their disabilities affected virtually all aspects of their lives, both in and out of school.

It is not surprising that youth with such severe functional deficits were not engaged in the most common postsecondary pursuits. A focus on such outcomes as grades, employment, or postsecondary education largely overlooks youth with the most severe impairments, for whom such outcomes may well be beyond reach. The followup phase of the NLTS will broaden the range of activities examined for youth with severe disabilities in an effort to fill in some of the gaps in our understanding of the particular paths they took in transition.

More has been learned about the school experiences of severely impaired youth than about their outcomes, and what is revealed is troubling. Although one might expect that the educational programs of such students would emphasize training in life skills and prevocational skills, these youth were less likely than others to attend schools that reported routinely providing special education students with life skills training, prevocational training, job counseling, or occupationally specific job skills training. One must wonder how youth with severe impairments are to acquire the skills and behaviors needed to maximize their independence after high school if traditional avenues for life skills and vocational instruction and for mainstream social interactions are not available to them in secondary school.

Young Women with Disabilities

NLTS analyses demonstrate that young women with disabilities had different experiences in secondary school and followed markedly different transition paths afterward than did men. Female special education students tended to be somewhat more severely impaired than their male counterparts. Despite this drawback, female students who took graded courses generally received higher grades and were less likely to fail courses than males, independent of disability and demographic factors. But regardless of better academic performance, they were no more likely to complete school than male students or to attend postsecondary schools. Even among high school graduates, fewer young women found jobs and, when employed, they earned less than males and were more likely to have jobs in service occupations.

Part of the relatively greater difficulty in transition of young women with disabilities may result from a lower rate of participation in programs to support them in preparing for transition. For example, female students were significantly less likely than males to have taken occupationally oriented vocational education in high school or to have received it as early in their school careers, before they were prone to dropping out. Part of the difficulties faced by young women with disabilities also may relate to the demands of parenthood. Although female students dropped out at about the same rate as men, parents of 23% of female dropouts with disabilities reported parenthood or marriage as reasons for dropping out, reasons reported for only 1% of male dropouts. Among women not engaged in work or schooling after high school, family responsibilities were cited by a majority as the chief claim on their time, although the average age for these young women was 19. Even though married women were significantly more likely than others with disabilities to have achieved an independent living arrangement, what are the prospects for the future financial independence of disabled teenage girls who were shouldering household and family responsibilities at so young an age? It would seem that programs to improve the transition and adult prospects of young women with disabilities must acknowledge the frequency of their role as mothers and caregivers for other family members and accommodate those demands if they are to be effective in preparing young women for more financially secure and independent lives.

The Economically Disadvantaged

The NLTS has demonstrated that special education students were significantly more likely than students as a whole to be from households with lower incomes and less well-educated heads, to be black, and to come from single-parent families. They were less likely to be going to school in suburban areas. These characteristics were not independent of each other but were often clustered.

This prevalence of economic disadvantage raises two concerns. First, NLTS research suggests that youth from lower-income households had different kinds and levels of service in school and in the postschool years. For example, students from lower-income families spent significantly less time in regular education classes than did higher-income students, irrespective of disability or other characteristics. Students from lower-income families were marginally, but consistently, less likely to have received a variety of support services than were higher-income students. NLTS research reported elsewhere (Wagner and Cox, 1991) shows that youth from lower-income households were less likely to have applied for services to a Vocational Rehabilitation agency after high school and, once applying, to have received services than were young people from more affluent families.

The second concern raised by NLTS findings related to poorer youth is that, for virtually all outcomes the NLTS has examined, young people who were economically disadvantaged were less likely to be doing well, independent of their disability characteristics and their levels of service. Students from single-parent and poorer households were absent from school more. Students from poorer families were less likely to belong to social groups while in school; poverty and lack of group affiliations both were associated with a greater likelihood of receiving failing grades. Socioeconomic status also was a strong predictor of whether youth out of high school had enrolled in postsecondary schools or had become engaged in productive work- or education-related activities in the preceding year.

This pattern suggests that youth with disabilities who also were economically disadvantaged had two strikes against them. Educational and support programs that attempt to compensate for or ameliorate the effects of disability, but that do not address the difficulties resulting from poverty may not meet the needs of youth who experience both. A broader view of their educational and social needs seems warranted.

Beyond a focus on how youth with disabilities are doing, both as a whole and from the perspective of selected groups of young people, NLTS findings also suggest several conclusions regarding the transition process, particularly about the role of schools in that process.

The Link Between Secondary School and Postschool Outcomes

Secondary school experiences can and do help to shape youths' experiences and accomplishments after leaving school. Students who missed more school and those who failed a course in their most recent year in school were more than half again as likely to drop out than better performers. Dropouts were on a downward trajectory into their early adult lives relative to graduates.

The existence of a school-postschool link should be heartening to educators, who can influence the transition outcomes of their students with disabilities by performing their primary educational mission effectively. If they can engage their students in school and help their students to perform up to their ability and to school expectations, they will have gone far toward ameliorating the propensity toward early school leaving. If successful in helping students to complete school, they will have done much to set those students on a positive road into adulthood.

Occupationally Oriented Vocational Training

Occupationally oriented vocational education is an educational intervention that appears to hold potential for positive school performance as well as positive postschool outcomes. Students who were enrolled in occupationally oriented vocational education were significantly more likely than nonparticipants to register positive outcomes in several areas, independent of student characteristics. Yet only about half of students were reported to have had such training in their most recent school year. Occupationally specific vocational education was not common for students until they reached the upper grades; those not assigned to a grade level were least likely to have taken occupational training. Young women also were much less likely than men to have had specific job skills training.

One might conclude from these findings that an expansion of opportunities for occupational training is needed. However, a note of caution is in order. Enrolling many students with disabilities in such courses may well help them in school and beyond. For others, however, such tracking may limit opportunities to take academic courses that could enable them to pursue postsecondary education or training. Vocational training should be an option available to secondary students with disabilities; a decision as to whether a given student participates in such training must reflect the interests, aspirations, and abilities of that student.

Regular Education Placements

Examining the relationships between spending time in regular education classes and transition outcomes reveals both good news and bad news. Grade point averages for regular education classes were significantly below those for special education classes, and students who spent more time in regular education classes were significantly more likely to have failed a course than students with fewer regular education courses when other aspects of the students' demographics, disabilities, and educational programs were held constant. But the NLTS suggests that the social goals of mainstreaming were being met for some students. Students with disabilities who spent more time in regular education were less likely to be socially isolated than others and more likely to be affiliated with school or community groups, controlling for other differences. Once they left high school, students who had spent more time in regular education were more likely to have gone on to some kind of postsecondary education, independent of their disability, individual, and household characteristics.

These mixed findings regarding regular education placements suggest the need to look beyond placement to educational experiences. One must look beyond the labels on classes, as well as the labels on students, to determine the educational experiences labels mask. More must be known about the experiences of secondary school students with disabilities in both their regular and special education classes if placement decisions are to be truly appropriate to individual students.

Work Experience During High School

The NLTS has considered the relationships between work experience during high school and several outcomes, and a consistent pattern of positive findings has emerged. When variations in demographic and disability factors were controlled, students who had held jobs in their most recent school year tended to perform better in school, to drop out of school less, and to have group affiliations more than unemployed students, although these relationships were not always strong. Work experience during high school also was significantly and positively related to finding paid employment after high school, other factors being held constant. Despite this pattern of positive relationships, only about 15% of students were reported by parents to have participated in a work-study program at school in their most recent school year, and only about half had held a paid job in the preceding year, whether sponsored by the school or found independently. There is room to expand the rate at which secondary school students with disabilities acquire work experience while in school.

Social Activities

Students who found a niche in organized groups had significantly better school performance, a lower likelihood of dropping out of school, and a lower likelihood of being arrested. Although there could be several explanations for these relationships, NLTS findings support the importance of young people's identifying with social institutions, accepting and internalizing social values and norms, and learning social skills and behaviors that will enable them to have positive experiences in social organizations. All of these are aspects of good citizenship, which can be taught at home and at school, beginning at an early age. Schools can support a wide variety of social, hobby, athletic, service, leadership, and other groups so that students with widely diverse interests and abilities have opportunities to establish social affiliations and exercise the roles and behaviors of good citizenship.

In contrast to the positive aspects of group membership, troublesome findings have emerged regarding young people who were reported by parents to get together with friends outside of school or work as many as 6 or 7 days per week. Students who socialized with friends this often were absent from school significantly more, and, independent of absenteeism, were significantly more likely to have failed courses. After high school, they were more likely than others to have been arrested. Among those who were not productively engaged in work- or education-related activities, "hanging out "and "seeing friends" were the most commonly mentioned activities used to fill time, particularly among males. Whatever the underlying dynamics of these relationships, NLTS findings raise a red flag of warning regarding very frequent social activities among adolescents and young adults with disabilities.

Future Directions of the NLTS

The focus of the NLTS thus far has been on students with disabilities in secondary school and in the years shortly afterward. Findings for that time period indicate both significant achievements and unfulfilled potential. Wide variations in experiences and outcomes have been documented for young people who differed in their disabilities, their economic status, and their gender. The NLTS also has highlighted what seems to help and what seems to hurt as these young people move through their different transition processes. However, adolescence and early adulthood are times of rapid change. Hence, the NLTS is taking stock of these young people again in 1990 and 1991. Comparing their experiences with findings from 1987 will make it possible to describe better the paths into adulthood of youth with disabilities.

Although longitudinal analyses for all youth in the NLTS must await further data collection, a first glimpse of the changes and developments youth were experiencing after high school is available for a group of young people who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded. There is some cause for optimism concerning these young people. Two to 4 years after high school, employment rates were climbing, wages earned were increasing, and independent living arrangements were becoming more common than in the first 2 years after high school. However, the educational arena appears still to be a challenge for most young people. Few dropouts were completing their high school educations, and postsecondary school enrollment remained low as youth gained distance from their high school educations.

The coming years of the NLTS will focus on trends such as these for youth with all types of disabilities. Subsequent reports will address key issues in the transition of these young people as many of them move into their early adult years.

1 INTRODUCTION

by Mary Wagner

Adolescence is a particularly challenging time in the process of growing up. Although all of childhood can be viewed as a gradual movement from dependence toward adult independence, in the adolescent years, the pace of that movement often accelerates. Youth may experiment with a variety of social roles and relationships, employment opportunities, and postures toward schooling. Peer relationships can be powerful and family relationships can be rocky. Heightened public concern with school dropout rates, teen pregnancies, drug and alcohol abuse, and teen suicide recognizes the serious stresses and potentially threatening outcomes of this time period.

Adolescence can be even more difficult for young people with disabilities and for their families. In addition to the developmental challenges of their age, these young people also face the particular challenges to independence that result from their disabilities. Although independence may come readily for some, for others, the classic pattern of growing up, graduating from high school, going on to school or finding work, and becoming an independent adult may simply be precluded by the nature or severity of their disabilities. For others, some or all aspects of this view of adult independence may be possible if needed forms of education, training, and support are provided. While youth with disabilities are in secondary school, most receive special education and, perhaps, related or support services to help them benefit from their educations. When they leave school, young adults with disabilities and their families face a more complex network of organizations, services, and qualifying conditions. Finding and qualifying for needed assistance in the post-high-school years can take perseverance and a sophisticated knowledge of the social service system. Even so, the resources available in that system to help youth attain employment, further education, or other goals may be insufficient or poorly matched to the needs of some youth with disabilities.

The uncertainties of this time of transition from high school to adulthood have led to its being dubbed "the floundering period" (Freeman and Medoff, 1982). That floundering has been well described in a series of case studies of young adults with learning disabilities shortly after high school: "These [young adults] are anxious and frustrated by the uncertainty of their future. They have no clear course that they are following; rather, they move around from part-time job to part-time job, from class to class, from school to school" (Zetlin and Hosseini, 1989).

A concern for the obstacles facing youth with these and other types of disabilities in making a successful transition from secondary school to adulthood has projected transition issues, programming, and research into the policy spotlight at the federal, state, and local levels. In 1983, the U.S. Department of Education's Office of Special Education and Rehabilitative Services (OSERS) focused public attention on this area (Will, 1984) and began a series of program initiatives that have supported both research studies and demonstration projects dealing with transition issues. Several states and numerous local school districts also have initiated programs and studies focusing on assisting and assessing youth with disabilities in transition.

Implied by this policy interest is the assumption that schools can and should be aiding students with disabilities in their transition out of secondary school. The pivotal role of the secondary school in effecting a successful "hand-off" of students with disabilities to adult agencies, employers, or educational institutions is explicit in the recent inclusion in federal special education legislation, the Individuals with Disabilities Education Act (IDEA), a requirement that transition planning become a component of individualized education plans for students in special education who are 16 years old or older.

Despite the potential aid that schools might provide students in making their transitions to postsecondary activities, schools recently have not gotten high marks from parents or from educators for the effectiveness of their efforts. In the *Report Card on Special Education* (ICD, 1989), schools' programs to prepare students with disabilities for work or further study beyond high school received the lowest ratings from both parents and educators when compared with other aspects of special education. Only 11% of parents and 15% of educators said that schools were doing an excellent job of preparing students with disabilities for jobs after high school, and 15% of both groups said that schools were doing an excellent job of preparing students for postsecondary education.

Much of the policy and programmatic activity regarding the transition of youth with disabilities has gone on in the absence of fairly basic information on the nature and scope of the problems youth have in transition. Studies in some individual states and communities suggested that exiters from special education were having difficulty finding or keeping employment, were not well integrated into social or community networks, and were not gaining increasing independence, as they and their families had hoped they would (e.g., Mithaug and Horiuchi, 1983; Edgar, Levine, and Maddox, 1986; Hasazi, Gordon, and Roe, 1985). However, this research base consisted largely of studies of relatively few youth who were in particular disability categories, in a few school districts or a single state, or in a specific educational placement or treatment program. It was difficult to paint a broad picture of students from this fragmented research base. Many questions remained. Nationally, what were the secondary school experiences of students with disabilities? What proportion of youth were failing to find jobs after high school? How different were schooling or employment experiences for youth with different kinds of disabilities? What schooling experiences appeared to facilitate postschool employment or further education? National data were needed to make national policy.

Responding in part to the absence of information at the national level on crucial questions regarding youth with disabilities in secondary school and beyond, the U.S. Congress mandated that the U.S. Department of Education commission a longitudinal study of youth who were students in secondary school special education, ages 13 to 21,* in the 1985-86 school year. The sample was to be nationally representative and permit generalizations to the population as a whole, as well as to students in each of the 11 federal disability categories separately. Experiences of youth were to be described in the domains of education, employment, and independent living. In 1985, under contract to the Office of Special Education Programs, SRI International began to develop the design, sample, and data collection instruments for the National Longitudinal Transition Study of Special Education Students (NLTS). Under a separate contract, SRI initiated the study in 1987.

The NLTS collected data in 1987 for more than 8,000 youth with disabilities who were selected from 300 public school districts and 25 state-operated special schools serving students who were deaf or blind throughout the United States. (Appendix A has more detailed information on the NLTS sample; see also Javitz and Wagner, 1990.) In 1989, this extensive database was supplemented with data from interviews for a subsample of more than 800 parents and/or youth in selected disability categories who at that time had been out of secondary school between 2 and 4 years. This volume reports findings based on extensive analyses of data from these two data collection efforts.†

This report provides a picture, painted with a broad brush, of numerous characteristics and experiences of youth with disabilities in secondary school and in the first few years afterward. Although several additional papers and reports from the NLTS look at specific topics in greater depth, this report is the most comprehensive examination of the wide range of experiences and outcomes of youth with disabilities measured as part of the NLTS thus far. Its expansive scope of topics and analyses is intended to respond to the information needs of many audiences, including policymakers, educators, service providers, parents, and young people with disabilities, who are interested in an empirical examination of transition issues relevant to students in special education. Readers of this report who have unanswered questions concerning its major topics are encouraged to refer to other products from the NLTS, listed in Appendix B.

NLTS Research Questions

The NLTS has been designed to provide answers to a specific set of research questions; these answers will enable us to both describe and explain various experiences and outcomes of youth with disabilities in the domains of education (both secondary and postsecondary), employment, and personal independence. In this report, we address the following descriptive questions:

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* It is important to note that the NLTS sample does not generalize to all youth with disabilities at each of these ages, but only to youth at a given age who were still in secondary school at that age. Hence, the NLTS sample of 17-year-olds does not represent 17-year-olds who had dropped out of school at age 16. Similarly, the NLTS sample of 21-year-olds represents youth who were still in secondary school at that age, which is a narrow subset of all youth with disabilities who were 21 in 1985-86.

† Data were collected for the full sample of youth again in winter 1990. Findings incorporating these follow-up data will be presented in subsequent reports.

- What were the individual and household characteristics of youth with disabilities served in secondary special education?
- What educational experiences and support services were youth with disabilities provided? How did these vary for youth in different disability categories, different types of schools, or different grade levels?
- What were the achievements of youth with disabilities related to their education (secondary school and postsecondary), employment, and independence? How did these vary for youth who differed in their disabilities and other characteristics?
- What combinations of services, experiences, and outcomes formed transitional life paths for youth with different kinds of disabilities?

Explanatory questions being addressed include:

- What factors combine to explain the educational experiences of youth with disabilities?
- What factors explain the educational, employment, and independence outcomes of youth with disabilities?
- What explains the paths youth took through secondary school and beyond with respect to services, experiences, and outcomes?

Although a more complete answer to these questions will be available at the conclusion of the NLTS in 1992, these questions are addressed here to the extent that data are now available.

Components of the NLTS

The broad scope of analysis implied in the diversity of the NLTS study questions has required data from several sources. The NLTS has the following major components:

- *The parent/guardian survey.* In the summer and fall of 1987, parents were interviewed by telephone to determine information about family background and expectations for the youth, characteristics of the youth, experiences with special services, and the youths' educational attainments (including postsecondary education), employment experiences, and measures of social integration. Parents rather than youth were selected as respondents for the first wave of data collection because of the need for family background information and because, with most students still being in secondary school and living at home, parents were believed to be accurate respondents for the issues addressed.*
- *School record abstracts.* Information has been abstracted from students' school records for their most recent year in secondary school (either the 1985-86 or 1986-87 school year). This information relates to courses taken, grades achieved (if in a

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* For 8% of youth, a parent/guardian was not available to respond to the interview. These were generally cases in which youth lived with another family member or were under the protection of the state and lived with nonfamily members. In such cases, the adult who was most knowledgeable about the youth was interviewed. Responses of these nonparents are included in the analyses, although interviews are referred to as "parent interviews."

graded program), placement, support services received from the school, status at the end of the year, attendance, IQ, and experiences with minimum competency testing.

- *The Survey of Secondary Special Education Programs.* Schools attended by sample students in the 1986-87 school year were surveyed for information about enrollment, staffing, programs and services offered to secondary students in special education, policies affecting special education programs and students, and community resources for the disabled.
- *Explanatory substudies.* Two studies involving subsamples of youth have looked in greater depth at the experiences of youth in the following disability categories: learning disabled, emotionally disturbed, speech impaired, and mildly or moderately mentally retarded; youth in these categories constitute more than 90% of students in special education at the secondary level. One substudy examines the secondary school programs of students who completed school in the 1988-89 or 1989-90 school years (the school program substudy). Because this substudy has only recently been completed, data from it are not included in this report.

  A second substudy (the exiter substudy) considers the patterns of transition outcomes achieved by youth who already were out of secondary school from a few months to 2 years in the summer of 1987. For these youth, data were collected again in 1989. At that time, the youth were 2 to 4 years out of high school. Parents of more than 800 youth were interviewed by telephone regarding services their young adult children had received and aspects of their functioning and independence. If parents reported that youth were able to answer questions by telephone themselves, the youth then were interviewed regarding employment, postsecondary education, use of leisure time, and other aspects of their experiences. If youth were not able to be interviewed, parents were questioned about these topics. Data from the exiter substudy enable us to take a first look at the changes in experiences over time for the same group of youth through their early years after high school. Selected results of the exiter substudy are included in this report.

Although the NLTS thus far includes data for more than 8,000 youth, the number of youth for which each component of data was obtained varies. For example, some items from parent interviews are available for about 7,600 youth, and school record abstracts were obtained for about 6,200 young people. However, substantially fewer youth have data from both components, and only about 4,200 have data from all three major components of the study (the third being the Survey of Secondary Special Education Programs). The exiter substudy includes a subsample of approximately 800 youth. Hence, the number of cases on which percentages are based varies widely in the tables presented in this volume. Each table reports the source of its data as an indicator of the sample it includes; when other factors also were used to define the sample for a particular table (e.g., only youth who were out of secondary school), those factors are reported in the table.*

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* The confidence the reader places in particular findings should be based in part on a recognition of their source. The accuracy of parent reports about their adolescent or adult children may vary depending on the subject of an item. For example, parents were expected to be quite accurate reporters of data on household characteristics, but to be less aware of—and, therefore, report less accurately on—the kinds of services their children were provided in school or by other agencies. When two sources of data were available for a given item, consistency checks were performed. Discrepancies were resolved using decision rules summarized in Appendix C. More detailed information on measurement and analysis issues is reported elsewhere (Wagner and Javitz, in process). However, for most items, only one source of data was available, making it impossible to verify the accuracy of the responses.

A Conceptual Framework Characterizing the Transition Process

The data from these several sources draw their structure and coherence from a shared conceptual framework that characterizes the transition process. This framework, depicted in Figure 1-1, was developed in the design phase of the NLTS and reflects what was known and hypothesized from existing research in several fields about the transition process and the factors that affect it. The framework was the basis for determining the components of the project and the contents of the data to be collected in each component. It is also the foundation for the analyses whose findings are reported here.

The transition process modeled in Figure 1-1 spans several years of adolescence and early adulthood, encompassing experiences both in secondary school and in the years immediately afterward. The several-year time frame of the transition process has two important implications for the NLTS. First, as recognized by Congress in its original study mandate, the study must be longitudinal if it is to capture both secondary and postsecondary experiences and relate the two. Second, the nature of the youth outcomes the NLTS examines is different at different stages in the transition process. For example, an answer to the question "How are youth doing?" has a different focus at the secondary school stage than it has for youth in the out-of-school stage. The outcomes addressed for youth at each stage are described below.

Youth Outcomes

Outcomes at the secondary school stage are depicted by Box D in Figure 1-1. In the academic domain, issues of school performance (e.g., course grades) and school completion may be paramount. Employment also is a common occurrence for secondary school students, and aspects of students' social lives are particularly important. The specific outcomes at the secondary school stage we examine in this volume include[*]:

- School performance in the most recent school year
    - Absenteeism (number of days absent)
    - Grade performance (grade point average, receipt of failing grades)
    - Minimum competency test performance (whether taken, whether passed)
    - Retention at grade level
- Secondary school completion
    - Modes of school leaving (graduate, drop out, age out, expelled)
    - Rates of dropping out vs. persisting in school
- Employment
    - Participation in work-study jobs in the most recent school year
    - Paid employment currently and in the previous year
    - Job profiles (hours worked, types of jobs, wages)

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[*] Appendix C contains more details on the definition, measurement, and coding of outcome measures and other variables used throughout this report.

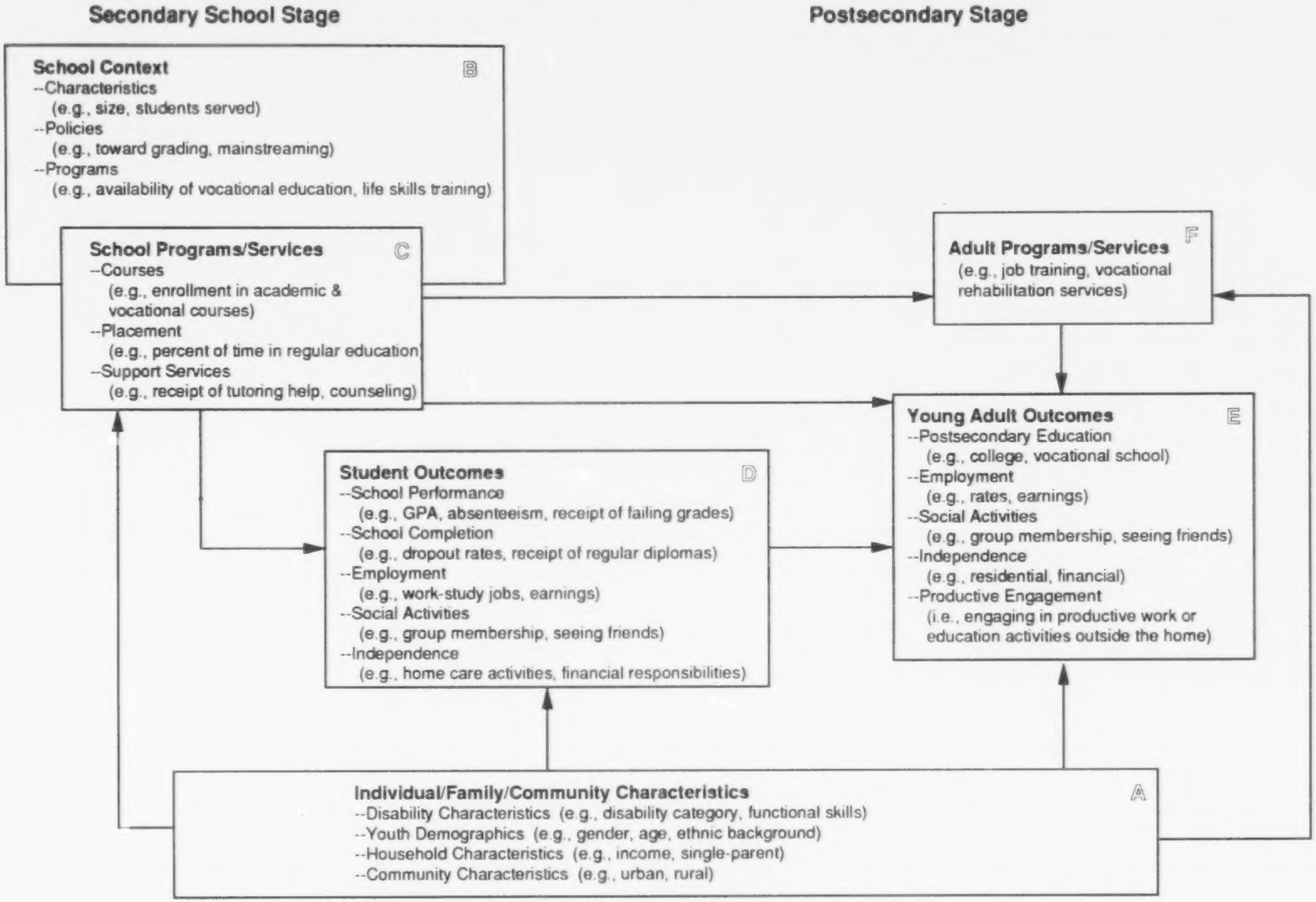
Secondary School Stage
Postsecondary Stage
School Context B
--Characteristics
(e.g., size, students served)
--Policies
(e.g., toward grading, mainstreaming)
--Programs
(e.g., availability of vocational education, life skills training)
School Programs/Services C
--Courses
(e.g., enrollment in academic & vocational courses)
--Placement
(e.g., percent of time in regular education)
--Support Services
(e.g., receipt of tutoring help, counseling)
Adult Programs/Services F
(e.g., job training, vocational rehabilitation services)
Young Adult Outcomes E
--Postsecondary Education
(e.g., college, vocational school)
--Employment
(e.g., rates, earnings)
--Social Activities
(e.g., group membership, seeing friends)
--Independence
(e.g., residential, financial)
--Productive Engagement
(i.e., engaging in productive work or education activities outside the home)
Student Outcomes D
--School Performance
(e.g., GPA, absenteeism, receipt of failing grades)
--School Completion
(e.g., dropout rates, receipt of regular diplomas)
--Employment
(e.g., work-study jobs, earnings)
--Social Activities
(e.g., group membership, seeing friends)
--Independence
(e.g., home care activities, financial responsibilities)
Individual/Family/Community Characteristics A
--Disability Characteristics (e.g., disability category, functional skills)
--Youth Demographics (e.g., gender, age, ethnic background)
--Household Characteristics (e.g., income, single-parent)
--Community Characteristics (e.g., urban, rural)

FIGURE 1-1 CONCEPTUAL FRAMEWORK OF TRANSITION EXPERIENCES AND OUTCOMES OF YOUTH WITH DISABILITIES

- Social/antisocial activities
    - Frequency of getting together with friends
    - Group memberships
    - Arrest*
- Independence
    - Responsibility for household chores
    - Residential arrangements

In the post-high-school years, employment and postsecondary education are central issues, as are questions of whether youth are gaining increasing independence in such areas as living arrangements. Postsecondary outcome measures include:

- Postsecondary education
    - Enrollment in a postsecondary vocational or trade school
    - Enrollment at a 2-year college
    - Enrollment at a 4-year college or university
    - Postsecondary education experiences (number of courses taken, grades received, programs completed)
- Employment
    - Current paid employment, both competitive and sheltered
    - Employment in the previous year
    - Job profiles
- Social/antisocial activities
    - Frequency of getting together with friends
    - Group memberships
    - Arrest
- Independence
    - Responsibility for household chores
    - Financial management activities
    - Residential arrangements

Factors Examined in Relation to Outcomes

The framework in Figure 1-1 not only suggests the kinds of outcomes we should consider at various stages of transition, but hypothesizes major categories of factors that theory and research suggest relate to those outcomes. Chief among these are characteristics of the individual and the household from which he or she comes, depicted in Box A of the conceptual framework. These factors form a core set of variables that are used throughout the analyses reported here to illuminate variations in outcomes of interest. These core variables include:

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* A few items in the parent interview asked parents to report what they might consider negative behaviors on the part of their children, such as whether the youth had ever been arrested or fired from a job. The tendency for respondents to give socially acceptable answers to such items raises the question of the accuracy of parent reports for sensitive items. Although there is no objective validation of responses available to the NLTS, several factors suggest that parent reports produced generally valid data for these items: a low level of nonresponse to such items; a reasonably large number of respondents reporting negative behaviors (e.g., parents of 21% of youth who had been out of school 1 to 2 years indicated the youth had been arrested; 32% of exiters from secondary school were reported to have dropped out of school); and strong evidence of construct validity based on observed relationships among variables.

Disability Characteristics

Our first priority in considering differences among youth in their transition experiences is to describe those differences for youth with various kinds and levels of disability. The youth's primary disability category is our first distinguishing characteristic. Throughout this report, all analyses present findings for youth in each disability category, as well as for youth with disabilities as a whole. This emphasis on the nature of a disability recognizes that, although we discuss youth with disabilities as a single group, the nature of a particular youth's disability can powerfully condition his or her experiences. Those experiences can be more like the experiences of youth who have no labeled disability than they are like the experiences of youth with a different kind of disability. However, even when youth share a particular kind of disability (e.g., mental retardation), the severity of that condition can vary widely. Hence, we also consider variations in abilities for youth in the same disability category. Specific variables include:

- *Disability category.*[*] We present findings for youth who are classified into the 11 federally defined special education disability categories (category definitions are presented in Chapter 2). The assignment of youth to a disability category in tables reporting crosstabulations is based on the primary disability designated by the youth's school or district in the 1985-86 school year. In multivariate analyses, somewhat different groupings are used for parsimony and greater statistical power (Appendix C describes this alternative categorization). We hypothesize that the nature of the youth's disability accounts for much of the variation in outcomes, with youth in such categories as learning disabled generally experiencing more positive outcomes than youth in categories such as multiply handicapped or mentally retarded, for example.
- *Functional skills.* Chapter 2 demonstrates the considerable variation in functional abilities among youth in particular disability categories. Two scales, based on parents' reports of youths' self-care and functional mental skills (scales are defined in Chapter 2), are expected to differentiate youth as to outcomes, with higher-scoring youth generally experiencing more positive outcomes.
- *IQ score.* IQ scores were obtained from youths' school records from their most recent school year. Youth with higher IQ scores generally are expected to demonstrate more successful transition outcomes than youth with lower measured intelligence.

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[*] Disability category definitions, assessment methods, and rules of thumb for categorizing students vary widely among states and often among school districts within states. Because we have relied on category assignments made by schools and districts, NLTS data are most validly interpreted as describing youth who were categorized as having that disability by their school or district, not as describing youth who truly had a particular disability.

Demographics, Household, and Community Characteristics

Despite the primacy of disability-related characteristics in this report, Figure 1-1 suggests that youths' outcomes are a product of much more than their disabilities. Many years of education and social science research have demonstrated the powerful influences that demographic and household characteristics can have on young people as they move through school and into adulthood. Variations in school performance and in rates of dropping out, employment, and postsecondary education all have been linked in various studies to differences in individual and family characteristics. Figure 1-1 hypothesizes the relationship of such factors both to the programs students experience while in school and to their outcomes in school and in the early years after high school. A core set of NLTS demographic variables includes the following:

- *Gender*. We expect youth with disabilities to reflect some aspects of the general population of youth; hence, we expect significant gender differences in some outcomes. Rates of employment, particularly, are expected to be higher for young men than for women (e.g., Greenberger and Steinberg, 1983).

- *Age*. The relationship of age to the outcomes of interest in this study is not straightforward. As discussed previously, many of our analyses focus either on youth while they were in secondary school (e.g., analyses of school achievement) or on youth after leaving school (e.g., rates of postsecondary school enrollment). Among in-school youth, we expect to find a nonlinear relationship of age to school outcomes, with both younger students (i.e., those 15 or 16) and older students (i.e., those 20 or 21) having less positive outcomes. We expect better outcomes for the middle group of students (i.e., ages 17 through 19) because those who do poorly in school generally leave school in the middle-school or early high school years, leaving higher achievers among students in the upper grades. However, students who were older than the usual age for being in high school (i.e., older than 19) generally were more severely impaired than their younger counterparts and may have experienced less positive outcomes.

  Among out-of-school youth, those who were older generally had been out of school longer. They might be expected to have had both greater maturity and more time to find their place in the working world or in postsecondary schools. However, for our sample, the oldest youth were those who were still in high school at age 20 or 21; again, these youth generally were more severely impaired than youth who left school at earlier ages and may have experienced more difficulty in making their transitions to adulthood.

- *Ethnicity*. Earlier research has documented the relative disadvantage minority youth experience in education and employment domains (OERI, 1988). We expect to find a similar pattern of poorer transition outcomes among minority youth with disabilities.

- *Socioeconomic status*. Similar to findings for minority youth, research has documented the negative effects of poverty on the transition experiences of adolescents and young adults, whether measured by household income or parent education; we expect similar findings. Because poverty is often characteristic of single-parent households, we also expect young people from single-parent households to demonstrate less positive transition outcomes than youth from two-parent households.

- *Community location*. We examine the extent to which variations in transition outcomes exist among youth according to the urbanicity of their communities, with youth in suburban communities expected generally to fare better than their urban or rural peers.

Although we expect the variables described above to do much to help us illuminate important differences in the experiences of youth with disabilities, focusing on these alone would mistakenly imply that youth outcomes are determined solely by immutable characteristics that young people bring with them to school. Although powerful influences, such characteristics are only part of the story. Other factors examined in relation to outcomes are described below.

We hypothesize that school programs, support services, and other experiences can and do help shape youths' choices and behaviors in the transition process. The specific program characteristics or services included in a particular analysis are those expected to relate to the outcome being analyzed. For example, receipt of life skills training is considered in an analysis of youths' participation in household responsibilities, while the percentage of time spent in regular education is considered in relation to secondary school performance outcomes. In the terminology of the experimental paradigm, these factors constitute elements of the "treatment" provided youth with disabilities in the transition process. Because these factors depend on the specific analysis, they are not all listed individually here. However, examples of such factors include:

- Youths' school programs and other support services in their most recent school year (Box C)
    - Grade level
    - Enrollment in vocational education
    - Placement in regular education classes
    - Receiving support services (e.g., help from a tutor, reader, or interpreter; personal counseling or therapy; life skills training).
- School context (Box B)
    - Enrollment in a special school serving only students with disabilities
    - School size
    - School policies supporting mainstreamed students and their regular education teachers.

Overview of the NLTS Analysis Approach

Illuminating the complexity of the many relationships hypothesized in the conceptual framework is the analytic challenge facing the NLTS. Our analysis approach is two-pronged.

First, we take a descriptive look at a given topic (e.g., school completion), generally presenting findings for youth in different disability categories and for youth with disabilities as a whole. This "disability first" approach is meant to underscore the crucial differences in experiences of youth with different disabilities that are masked by findings for youth with disabilities as a group. When disability-related differences are understood, we then draw the reader's attention to factors that are related to differences in particular experiences or outcomes.

The percentages and means reported in the descriptive tables* have been weighted to represent the national population of youth with disabilities who were in special education in grades 7 through 12 (or equivalent ages) in the 1985-86 school year. Hence, an estimate that 56% of youth were classified as learning disabled is an estimate for youth nationally, not a percentage of the youth in the NLTS sample. However, the sample sizes reported in the tables (indicated as "N") are not weighted; sample sizes are the actual number of NLTS cases on which estimates are based. (See Appendix A for more information on sample weighting.) Because of sample weighting, means and percentages for youth as a whole are heavily dominated by youth in the larger disability categories, particularly learning disabled, further underscoring the importance of reporting youth experiences and outcomes separately for youth in each disability category.

When possible, we compare NLTS findings with statistics for two groups of youth drawn from the general population. These comparison groups have been constructed using data from the National Longitudinal Survey of Youth (NLSY, discussed in greater detail in Appendix A). The first group includes youth from the general population as a whole. We have learned, however, that youth with disabilities differ from youth in general in ways other than the presence of a disability (see Chapter 2). Therefore, a second comparison group has been constructed from the NLSY that has the same distribution on selected demographic characteristics (e.g., gender, ethnicity) as youth with disabilities. With this comparison group, we can better identify to what extent differences between youth with disabilities and other youth are attributable to demographic differences.

This descriptive analysis presents estimates of key outcomes (e.g., employment, living independently) for youth in important subgroups (e.g., each disability category, men with learning disabilities, minority students) and compares those findings with experiences of youth in the general population. However, we recognize that many of the factors we use to differentiate youths' experiences and outcomes are related to each other, often in complex ways. For example, poverty, minority status, and coming from a single-parent household are not independent of each other; they often occur in combination as a cluster of characteristics associated with economic disadvantage. Identifying the independent contribution of each of these factors to variations in outcomes requires more complex analytic techniques. Similarly, variations in school programs are closely tied to the nature and severity of youths' disabilities. Students who spent most of their time in regular education classes, as a group, had markedly different disability profiles than did students who were in segregated special day classes. The effects of their placements on their school outcomes cannot be separated from the effects of their disability differences in analyses of two-way or three-way crosstabulations.

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* Data tables also contain approximate standard errors for means and percentages (designated as S.E. or included in parentheses). Standard errors have been adjusted to account for the effective sample size, rather than the actual sample size, and are larger than would be the case without such an adjustment. (See Appendix A for more information on calculation of standard errors.) Although the text generally highlights findings that are statistically significant at the .05 level or below (indicated as p<.05, .01, or .001), Appendix A instructs readers in how to use standard errors to calculate confidence intervals and to determine whether differences between estimates not mentioned in the text are statistically significant. Readers should interpret data in light of the standard errors. Percentages or means based on subgroups with relatively few cases have a considerably greater margin of error than those based on larger subgroups. When fewer than 30 cases were included in a particular cell, the small sample size is indicated by "—" and no percentage or mean is reported.

As our emphasis shifts from descriptive analysis to the explanatory questions of the study, we must untangle the complex interrelationships among the factors our conceptual framework suggests influence the transition outcomes of young people with disabilities. We may see that poorer outcomes occurred for minority youth, for example, but was it because of their ethnic background or because of the poverty that was more prevalent among minorities? We may see differences in academic achievement for youth in regular vs. special education classes, but were those differences due to placement or to the significant differences in the disabilities of students in those placements?

To identify the independent relationships of various factors to outcomes, we employ multivariate analysis techniques. Such analyses allow us to estimate the magnitude and direction of relationship for numerous explanatory factors, statistically holding constant the other factors in the analysis. We present the results of multivariate analyses in several chapters in this report, identifying explanatory factors that have statistically significant relationships to the outcome being analyzed, and estimating the approximate size of the effect each has on the outcome. We caution readers that these findings are based on correlations among multiple factors; when a significant relationship is found between a variable and an outcome, that factor should not be interpreted as causing the outcome or as predicting an outcome for a particular type of youth. Readers are encouraged to consult Appendix A for further discussion of the multivariate analysis approaches we have used here.

Report Overview

The structure and content of this report reflect the driving force of its underlying conceptual framework. The second chapter describes youth with disabilities in terms of the factors included in Box A of the framework—the disability and demographic characteristics of youth that serve as a background against which to interpret findings regarding their experiences and outcomes. Chapter 3 then focuses on the early years of the transition process by describing several aspects of students' experiences in secondary school, including characteristics of the schools, policies and services that support students with disabilities and their teachers, students' course-taking, and the extent of their placement in regular education classrooms (Boxes B and C).

Chapters 4 and 5 deal with the outcomes of secondary schooling: students' school performance and school completion (Box D). We learn the extent to which students with disabilities performed well or poorly in school and persisted in school or dropped out; we learn the characteristics of youth and of their school experiences that NLTS data suggest relate to differences in these secondary school outcomes.

Chapters 6 through 8 deal with outcomes that span both the secondary and postsecondary stages of transition (Boxes D and E). The first of these chapters concerns aspects of the social integration of youth with disabilities, including their involvement with friends, membership in various kinds of groups, and antisocial behavior indicated by arrest rates. Differences between these aspects of young people's social lives when they were in secondary school and after leaving school are discussed. Chapter 7 concerns a variety of dimensions of personal independence, including home care responsibilities, financial management activities, and residential arrangements. Chapter 8 examines employment experiences of youth during secondary school and in the first few years after leaving school. The extent, kinds, and duration of employment are examined, as well as wages earned.

Chapters 9 and 10 focus exclusively on youth who had left secondary school by summer 1987 (Box E). The postsecondary education experiences of these "exiters" are examined in Chapter 9, including enrollment in postsecondary vocational schools and 2-year and 4-year colleges, and students' grade performance and program completion. Chapter 10 broadens the look at postsecondary outcomes to address the extent to which there were youth with disabilities who did not become engaged in either employment or educational activities in the early years after high school. We look at who the "nonengaged" were and what kinds of activities occupied their days.

Our final chapter reflects on the vast amount of information presented in this volume and highlights themes or consistent stories that emerge across the topics addressed in individual chapters concerning particular issues or young people with particular characteristics. Policy implications of the findings that emerge from this journey through the transition process also are discussed.

Following the presentation of findings, we have included commentaries by four readers who represent different perspectives on the issues and findings presented here. Ms. Teresa Middleton and Dr. Bud Fredericks are parents of young adults with disabilities. Dr. Irving Zola is himself orthopedically impaired. Dr. Alan Abeson, Director of the Association of Retarded Citizens of the United States, is an advocate for the interests of persons with mental retardation. From these various perspectives, the commentators provide their responses to the NLTS findings and insights regarding their implications for future policy, programming, and research regarding young people with disabilities.

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2 MORE THAN A LABEL: CHARACTERISTICS OF YOUTH WITH DISABILITIES

by Camille Marder and Robert Cox

The NLTS provides a great deal of new information about the individual and family characteristics of youth with disabilities, based on a sample of youth who were secondary school special education students in the 1985-86 school year. Who were the young people with disabilities being served by secondary special education programs? What disabilities distinguished them from young people in regular education programs? In what ways were they similar to the general population of youth, and in what ways did they differ? Answers to these questions are presented in this chapter.

To understand the experiences of youth in secondary school and during the process of transition, it is important to consider the personal characteristics and the household circumstances that are the background or context for individual development. The conceptual framework guiding the NLTS, described in Chapter 1, hypothesizes that background factors are related to important aspects of the transition process, including educational placement, experiences, and performance in secondary school; completion of secondary school; and entry into postsecondary education, employment, and other forms of engagement in adult life.

This chapter is concerned primarily with two sets of background characteristics that are vital to understanding the experiences of special education students in transition. One set of factors relates to the abilities and disabilities that characterize special education students. We ask:

- What were the disabilities for which students received special education services?
- What were their levels of various functional skills and IQ?
- At what age were they first reported to have experienced difficulties with their disabilities?

A second set of factors consists of demographic descriptors of youth and the households from which they came. We ask:

- What were the individual characteristics of youth, including their gender and ethnic background?
- What were the characteristics of the households from which they came, including household composition and socioeconomic status?
- Where were youth located in terms of region and urbanicity of their communities?

Finally, we consider the specific sample of youth included in the NLTS and the stage in life at which we encounter them. Because adolescence can be a time of rapid and significant changes in youths' development and experiences, it is important to understand the ages, grade levels, and school statuses of the youth we are describing here, as a background to interpreting the experiences and outcomes discussed throughout this volume.

Disability Characteristics of Youth

Primary Disability Category

During the 1985-86 school year, there were approximately 1.5 million special education students between the ages of 13 and 21 in schools in the United States (U.S. Department of Education, 1988a). Federal support for special education programs was provided under Part B of the Education of the Handicapped Act (P.L. 94-142, EHA-B) and Chapter 1 of the Education Consolidation and Improvement Act—State Operated Programs (ECIA-SOP). EHA-B, the much larger of these programs, served about 94% of all special education students. Under both programs, federal assistance was made available to states based on the number of students determined to be eligible for special education services in 11 disability categories: learning disabled, emotionally disturbed, speech impaired, mentally retarded, visually impaired, hard of hearing, deaf, orthopedically impaired, other health impaired, multiply handicapped, and deaf/blind.

Although there are federal definitions for these disability categories (specified in Table 2-1), applications of category definitions, assessment methods, and rules of thumb for categorizing students vary among states and often among school districts within states. A youth who is classified as mentally retarded in one state may be categorized as learning disabled in another and may not be eligible for special education at all in a third. Despite such variations, the school-assigned disability classification is an important indicator of disability. It is used for official counts on which some funding levels are based. In addition, how students are labeled may influence how they think of themselves and how they are treated by others.

Table 2-2 describes secondary school special education students in terms of their primary disability category. Data from the NLTS are compared to figures derived from the 1985-86 child count of students aged 13 to 21 who were served under EHA-B, as reported by the U.S. Department of Education (1988a). The two distributions are quite similar, differing at most by 3 percentage points for students in the mentally retarded category, indicating that the weighted NLTS sample very closely approximates the distribution of students of similar ages served under EHA nationwide.*

According to data from the NLTS, more than half (56%) of secondary special education students in the 1985-86 school year were classified as learning disabled. Other large fractions

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* Slight systematic differences between the two distributions are most likely caused by two factors. First, the NLTS includes some students served by ECIA-SOP, particularly in the deaf and visually impaired categories, while the EHA-B child count does not. Second, NLTS data include only those 13-year-olds who were in grades 7 or above; no 13-year-olds are included who were in special education in grade 6 or below, while the EHA-B data do. This age group of EHA-B student includes a relatively higher proportion of youth classified as speech impaired.

Table 2-1

FEDERAL DEFINITIONS OF SPECIAL EDUCATION DISABILITY CATEGORIES

Specific learning disability. A disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, write, spell, or to do mathematical calculations; this includes perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia, but does not include learning problems resulting from visual, hearing, or motor handicaps, or from mental retardation.

Seriously emotionally disturbed. Exhibition of behavior disorders over a long period of time that adversely affect educational performance; this includes an inability to learn that cannot be explained by intellectual, sensory, or health factors; an inability to build or maintain satisfactory interpersonal relationships with peers and teachers; inappropriate types of behaviors or feelings under normal circumstances; a general pervasive mood of unhappiness or depression; or a tendency to develop physical symptoms or fears associated with personal or school problems.

Speech impaired. Communication disorders, such as stuttering, impaired articulation, language or voice impairments, that adversely affect educational performance.

Mentally retarded. Significantly subaverage general intellectual functioning with concurrent deficits in adaptive behavior that were manifested in the developmental period and that adversely affect educational performance.

Visually impaired. A visual impairment that, even with correction, adversely affects educational performance, including students who are partially sighted or completely blind.

Hard of hearing. A hearing impairment, permanent or fluctuating, that adversely affects educational performance but that is not included in the deaf category.

Deaf. A hearing impairment that is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification, which adversely affects educational performance.

Orthopedically impaired. A severe orthopedic impairment that adversely affects educational performance, including those caused by congenital anomaly, disease, or other causes.

Other health impaired. Limited strength, vitality, or alertness due to chronic or acute health problems that adversely affect educational performance (includes autistic students).

Multiply handicapped. Concomitant impairments, the combination of which causes such severe educational problems that they cannot be accommodated in special education programs solely for one of the impairments (does not include deaf/blind).

Deaf/blind. Concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that they cannot be accommodated in special education programs solely for deaf or blind students.

Table 2-2

PRIMARY DISABILITY CATEGORY OF SECONDARY SPECIAL EDUCATION STUDENTS REPORTED BY THE NLTS AND EHA-B CHILD COUNTS

	Percentage of Students Aged 13-21[†] Reported by:			
	1985-86 EHA-B	NLTS		
Primary Disability Category	Child Count (%)	%	S.E.	N
Learning disabled	57.2	55.7	1.3	1,194
Emotionally disturbed	11.4	10.5	.8	779
Speech impaired	4.9	3.4	.5	588
Mentally retarded	20.7	23.9	1.1	1,205
Visually impaired	.5	.7	.2	875
Hearing impaired	1.1	1.7	.2	1,688
Hard of hearing	—	.9	.2	770
Deaf	—	.8	.2	918
Orthopedically impaired	1.1	1.2	.3	764
Other health impaired	1.4	1.3	.3	475
Multiply handicapped	1.6	1.6	.3	744
Deaf/blind	>.1	>.1	.0	100
Total number	1,558,048			8,414

[†] Includes students of these ages in grades 7 to 12 or who were not assigned to a grade level.

Source: NLTS school/district special education rosters and unpublished OSEP data.

of youth were classified as mentally retarded (24%) and emotionally disturbed (10%). Youth in these categories comprised 90% of secondary special education students. Speech impairment—a disability prevalent among elementary special education students—was the primary disability classification for only about 3% of special education students in secondary schools. Between 1% and 2% of students were classified as hearing impaired, orthopedically impaired, other health impaired, or multiply handicapped. The categories of visually impaired and deaf/blind each accounted for fewer than 1% of students.

Primary disability classifications provide a very broad and, for some purposes, a very useful shorthand indicator of the needs and capabilities of special education students. However, 11 categorical labels cannot reflect the great diversity of mental, sensory, and physical conditions that affect youth. Indeed, it is important to note that some categories are quite broad, encompassing a variety of specific disabilities, and all categories include youth who range widely in severity of disability. As an example, the other health impaired category includes youth with such disabilities as autism, neurological impairments, epilepsy, asthma, and heart disease. The mentally retarded category well illustrates the variation in severity. In some states, this category includes a range of students whose IQ test scores range from unmeasurable to as high as 79.

Learning disabled, the largest category, is particularly complex because it includes youth who vary widely in terms of both their specific disability and the severity of disability.

Additional Disabilities

Primary disability classifications can obscure the fact that many youth have more than one disability. Table 2-3 presents information on the extent to which youth with disabilities were

Table 2-3

YOUTH REPORTED AS HAVING OTHER IMPAIRMENTS IN ADDITION TO THEIR PRIMARY DISABILITY

	Percentage Reported[†] as Also Having:			
Disability Category	Any Other Disability	A Speech Impairment	Mental Retardation	N
All conditions	18.9	10.1	3.8	8,408
	(1.0)	(.8)	(.5)	
Learning disabled	11.1	5.7	1.0	1,191
	(1.3)	(1.0)	(1.4)	
Emotionally disturbed	24.3	3.4	8.1	779
	(2.2)	(.9)	(1.4)	
Speech impaired	13.8	NA	6.0	588
	(2.1)		(1.4)	
Mentally retarded	27.9	19.0	NA	1,204
	(1.7)	(1.5)		
Visually impaired	26.8	4.8	11.7	875
	(2.7)	(1.3)	(2.0)	
Hard of hearing	40.5	30.6	6.9	770
	(3.2)	(3.0)	(1.6)	
Deaf	47.2	31.6	9.7	918
	(2.7)	(2.5)	(1.6)	
Orthopedically impaired	36.1	13.4	15.8	764
	(3.0)	(2.1)	(2.3)	
Other health impaired	28.7	7.5	9.4	475
	(3.1)	(1.8)	(2.0)	
Multiply handicapped	82.6	30.2	55.0	744
	(2.6)	(3.2)	(3.5)	
Deaf/blind	62.9	14.6	47.1	100
	(6.5)	(4.8)	(6.7)	

Note: Standard errors are in parentheses.

[†] Youth were considered as having an additional disability if it was reported by a parent, school, or school district.

Source: NLTS school district special education rosters, students' school records, or parent interviews.

reported by their secondary schools or parents[*] to have additional impairments, beyond their primary disability. The table indicates the percentage of youth for whom an additional disability was reported at all, and the percentage of youth reported as having the two most common additional disabilities: speech impairments and mental retardation.

The presence of a disability in addition to the primary disability was reported for 19% of youth. Logically, additional disabilities were reported for the majority of youth who were multiply handicapped (83%) and deaf/blind (63%). Secondary disabilities also were quite prevalent for youth classified as deaf (47%), hard of hearing (40%), or orthopedically impaired (36%).

Speech impairments and mental retardation were the two most frequently reported additional disabilities. More than 10% of youth with disabilities were reported as having speech impairments in addition to some other primary disability, particularly among youth classified as hard of hearing or deaf (31% and 32%, respectively). Speech impairments were not uncommon among youth whose primary classification was mentally retarded (19%), deaf/blind (15%), or orthopedically impaired (13%).

A smaller percentage of youth with disabilities overall were reported to have mental retardation than speech impairments as an additional disability (4%). Approximately half of youth whose primary classification was multiply handicapped or deaf/blind also were reported to have mental retardation (55% and 47%). Mental retardation was reported for 16% of youth with orthopedic impairments, 12% of visually impaired youth, and for 9% of youth with other health impairments.

As this discussion illustrates, to understand fully the profile of abilities and disabilities of secondary special education students, one must look beyond the categorical labels. In the remainder of this section, we describe youth with disabilities from several additional perspectives. First, we consider several aspects of functional ability in an effort to understand the range of students incorporated into individual disability categories. Next, we discuss the variation in measured IQ levels for students in each disability category. Finally, we address the age at which parents reported that youth first began having trouble with a disability as a clue to how long students' experiences had been affected by their disabilities.

Selected Functional Abilities

By definition, a disability is a condition that limits an individual in the performance of particular tasks or in the enjoyment of certain activities. However, the tasks affected and the extent to which performance is impaired vary greatly. Some individuals are affected by their disabilities only in the performance of a few very specific or complex tasks, while others are affected in many aspects of life.

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[*] Parents and school records both were used as sources of information on secondary disabilities to obtain more complete data; many school record abstracts did not report data beyond primary disability category. The extent to which additional disabilities reported by parents would be confirmed by assessment processes is not known.

Clearly, the nature of a youth's disability bears directly on the types of tasks affected. Therefore, one would expect youth in different disability categories to differ in their abilities to perform particular tasks. However, because procedures for classifying youth vary among states, and because many youth have additional disabilities other than their primary impairment, we also would expect a considerable variation in functional abilities within disability categories.

To understand the impact of disabilities on various aspects of youths' functioning, the NLTS asked parents to assess their children's abilities to perform independently two kinds of daily living activities. The first involved very basic self-care skills; the second involved the application of selected functional mental skills to everyday tasks. Parents' evaluations of their children's functional abilities in these two areas are described below.

Self-Care Skills

Parents were asked to report how well they believed their children could carry out three self-care tasks on their own, without help: feeding oneself, dressing oneself, and getting to places outside the home, such as a neighbor's house or a nearby park.* Parents reported for each item whether youth could perform the task on their own "very well," "pretty well," "not very well," or "not at all well."

Table 2-4 shows parents' assessments of youth on each self-care task. The majority of youth in most categories were reported to be able to do these self-care tasks very well. However, there is some variation between the tasks and considerable variation between youth in different disability categories. Not surprisingly, of the three tasks, getting around outside the home presented the greatest challenge to youth in every disability category, according to parent reports. Parents indicated that 87% of visually impaired youth could feed themselves very well and that 78% could dress themselves very well, but that only 57% could get to places outside the home very well.

Youth classified as multiply handicapped or deaf/blind generally were less capable of performing each of the three tasks, as reported by parents. For example, 46% of youth with multiple impairments were reported by parents to be able to dress themselves "very well," compared with more than three-fourths of youth with mental retardation or visual or other health impairments and to 93% of youth who were deaf ($p<.001$). Youth classified as deaf were given significantly higher ratings by parents on each of the three tasks than youth in any other category ($p<.05$).

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* These questions were asked only of parents of youth who were classified as mentally retarded, visually impaired, deaf, orthopedically impaired, other health impaired, multiply handicapped, or deaf/blind. They were not asked of parents of youth who were classified as only learning disabled, emotionally disturbed, speech impaired, or hard of hearing because such disabilities were assumed not to interfere in most cases with the performance of the basic self-care skills being investigated. In later analyses in this volume, youth in these latter categories were assumed to score high on the self-care scale and were assigned that value. See Appendix C for more details on functional ability scales.

Table 2-4

PARENT REPORTS OF YOUTHS' SELF-CARE SKILLS

	Primary Disability Category						
Self-Care Skills	Mentally Retarded	Visually Impaired	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage reported by parents as able to feed themselves:							
Very well	88.0 (1.5)	86.6 (2.3)	95.7 (1.2)	75.1 (3.0)	89.1 (2.3)	59.2 (3.9)	73.3 (6.8)
Pretty well	8.1 (1.2)	10.9 (2.1)	3.8 (1.2)	14.3 (2.4)	6.6 (1.8)	15.4 (2.9)	17.4 (5.8)
Not very well	2.3 (.7)	1.9 (.9)	.3 (.3)	5.4 (1.6)	3.3 (1.3)	12.4 (2.6)	5.4 (3.5)
Not at all well	1.6 (.6)	.6 (.5)	.3 (.3)	5.2 (1.5)	1.1 (.8)	13.1 (2.7)	3.9 (3.0)
N	888	733	772	642	412	579	79
Percentage reported by parents as able to dress themselves completely:							
Very well	76.9 (1.9)	77.9 (2.8)	92.8 (1.6)	59.9 (3.4)	78.9 (3.0)	45.6 (4.0)	58.8 (7.5)
Pretty well	15.2 (1.6)	16.4 (2.5)	6.2 (1.5)	18.1 (2.7)	15.1 (2.7)	14.6 (2.8)	28.0 (6.9)
Not very well	4.1 (.9)	2.6 (1.1)	1.0 (.6)	6.8 (1.7)	3.0 (1.3)	10.4 (2.4)	6.8 (3.8)
Not at all well	3.9 (.9)	3.0 (1.1)	.1 (.1)	15.3 (2.5)	3.0 (1.3)	29.4 (3.6)	6.4 (3.7)
N	886	734	773	641	411	580	79
Percentage reported by parents as able to get around outside the house:							
Very well	73.0 (2.0)	56.6 (3.3)	87.0 (2.0)	51.4 (3.5)	70.7 (3.4)	37.2 (3.9)	24.7 (6.6)
Pretty well	8.9 (1.3)	20.3 (2.7)	6.9 (1.5)	18.3 (2.7)	8.4 (2.1)	8.0 (2.2)	6.5 (3.8)
Not very well	5.2 (1.0)	12.7 (2.2)	3.1 (1.1)	10.6 (2.1)	4.7 (1.6)	8.8 (2.3)	7.9 (4.1)
Not at all well	12.8 (1.5)	10.5 (2.1)	3.0 (1.0)	19.7 (2.8)	16.3 (2.7)	45.9 (4.0)	61.0 (7.5)
N	884	729	770	638	408	575	78

Note: Standard errors are in parentheses.

Source: Parent interviews.

To obtain a summary measure of self-care ability, we constructed a scale from the three self-care tasks by assigning a value of 4 to a response of "very well," 3 to "pretty well," 2 to "not very well," and 1 to "not at all well." By summing the three scores, we created a scale that ranges from 3 to 12. Youths' self-care abilities were considered high with a scale score of 11 or 12. To be rated as having medium ability, a youth must have scored 8 to 11. Other ratings earned a low score on the scale. Table 2-5 presents the percentages of youth in the appropriate disability categories who were rated high, medium, and low on this self-care scale.

The scale summarizes the diversity of abilities to perform self-care skills both between and within disability categories. Comparing categories, few youth classified as deaf had difficulties with the tasks; the mean scale score for deaf youth was 11.7 out of a possible 12 points. Somewhat more youth with mental retardation or visual or other health impairments had difficulties, with mean scale scores of about 11. More youth in the orthopedically impaired, multiply handicapped, and deaf/blind categories had difficulties, with youth averaging below 10 on the self-care scale.

The diversity of skill levels within some categories demonstrates the heterogeneity often masked by categorical labels. In every disability category youth scored at all three levels of the scale.

Table 2-5

VARIATION IN SELF-CARE SCALE SCORES BY PRIMARY DISABILITY CATEGORY

Disability Category	Percentage With Self-Care Scale Score[†] of:			Mean Scale Score	N
	High	Medium	Low		
Mentally retarded	75.7	15.8	8.5	10.9	881
	(2.0)	(1.7)	(1.3)	(.1)	
Visually impaired	70.0	23.2	6.7	10.8	727
	(3.1)	(2.8)	(1.7)	(.1)	
Deaf	90.3	8.9	.8	11.7	767
	(1.8)	(1.7)	(.6)	(.1)	
Orthopedically impaired	55.4	25.7	18.9	9.8	633
	(3.5)	(3.0)	(2.7)	(.2)	
Other health impaired	73.3	19.1	7.6	10.9	406
	(3.3)	(2.9)	(2.0)	(.2)	
Multiply handicapped	39.3	18.5	42.2	8.3	574
	(3.9)	(3.1)	(4.0)	(.3)	
Deaf/blind	28.0	47.6	24.4	8.9	78
	(6.9)	(7.7)	(6.6)	(.4)	

Note: Standard errors are in parentheses.

[†] The self-care scale ranges from 3 to 12. High ability is a score of 11 or 12, medium is a score of 8 to 10, and low is a score of 3 to 7.

Source: Parent interviews.

Functional Mental Skills

The second type of functional skills about which parents were asked to evaluate their children involved the application to daily activities of selected functional mental skills, such as reading and calculating. Parents of youth in all disability categories were asked to report how well their children could perform four functional mental skills on their own, without help: reading and understanding common signs, telling time on a clock with hands, counting change, and looking up telephone numbers and using the telephone.

We call these "functional mental skills" because mental skills are necessary to perform each task. However, it is important to note that mental skills alone are not sufficient; sensory or physical ability is also required. Three of the tasks (reading signs, telling time, and looking up telephone numbers) also require sight, and one (counting change) requires sight or physical dexterity. A component of one of the tasks (using the telephone) also requires either hearing or sight (for using a TTY). Thus, whereas a high score clearly indicates high functioning, a low score can indicate a deficit or deficits in mental, sensory, or physical capabilities.

As with self-care skills, parents reported great diversity in their children's abilities (Table 2-6). As would be expected given the sensory and mental demands of the task, youth were reported to have the greatest difficulty with looking up telephone numbers and using the telephone; this task had the smallest percentage of youth reported as able to perform the task "very well" (57%) and the highest percentage reported to do it "not at all well" (11%). Fewer than two-thirds of youth in every category were able to look up a telephone number and use the phone very well.

Comparing youth in different disability categories, those classified as mentally retarded scored comparatively low on each of the tasks; according to parent reports, 41% could use the phone very well, 47% could tell time very well, 57% could read signs very well, and 36% could count change very well. In contrast, with the understandable exceptions of youth classified as visually impaired, deaf/blind, and multiply handicapped, most youth with other classifications were reported to perform all four tasks very well.

From the four functional mental skills items, we created a summative scale that ranged from 4 (performed all four tasks "not at all well") to 16 (performed all four tasks "very well"). Table 2-7 shows that while 57% of youth with disabilities scored high on the scale, 36% scored medium on the scale, and 8% scored low. These findings indicate that functional mental skills were a challenge to considerably more youth than were self-care skills.

Reflecting the range of abilities seen for the individual tasks, the largest percentage of low scorers occurred in the multiply handicapped and deaf/blind categories, which had mean scores of about 8 on the 16-point scale. Performance levels were higher for youth with mental retardation and visual impairments, which had mean scores of about 12. Youth in most other categories averaged scores of about 14, with those in the learning disabled and emotionally disturbed categories having mean scores of about 15.

Table 2-6

PARENT REPORTS OF FUNCTIONAL MENTAL SKILLS

		Primary Disability Category										
Reported Functional Skills of Youth	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage able to look up phone numbers and use the phone:												
Very well	56.6	62.3	65.2	66.1	41.2	33.7	55.5	42.1	53.6	58.7	15.1	5.0
	(1.5)	(2.3)	(2.8)	(3.3)	(2.2)	(3.2)	(3.5)	(3.0)	(3.5)	(3.6)	(2.9)	(3.3)
Pretty well	23.7	27.2	21.0	19.9	18.8	24.0	22.0	14.1	20.5	19.5	10.8	3.6
	(1.3)	(2.1)	(2.4)	(2.8)	(1.8)	(2.9)	(2.9)	(2.1)	(2.8)	(2.9)	(2.5)	(2.8)
Not very well	8.9	6.3	8.4	6.3	14.9	15.4	8.3	14.3	11.7	8.6	16.7	6.8
	(.8)	(1.2)	(1.6)	(1.7)	(1.6)	(2.4)	(1.9)	(2.1)	(2.2)	(2.1)	(3.0)	(3.9)
Not at all well	10.7	4.2	5.4	7.7	25.1	26.8	14.2	29.5	14.2	13.3	57.3	84.6
	(.9)	(1.0)	(1.3)	(1.9)	(2.0)	(3.0)	(2.4)	(2.8)	(2.4)	(2.5)	(4.0)	(5.5)
N	6,708	929	602	455	874	716	670	756	638	416	573	79
Percentage able to tell time on a clock with hands:												
Very well	69.1	76.8	77.9	80.1	46.7	51.0	80.9	84.5	70.5	67.8	24.1	20.6
	(1.4)	(2.0)	(2.4)	(2.8)	(2.3)	(3.4)	(2.7)	(2.2)	(3.2)	(3.5)	(3.4)	(6.3)
Pretty well	16.7	16.9	15.4	10.2	18.4	20.9	12.9	9.4	14.4	14.0	15.7	13.3
	(1.1)	(1.8)	(2.1)	(2.1)	(1.8)	(2.7)	(2.3)	(1.8)	(2.4)	(2.6)	(2.9)	(5.3)
Not very well	7.7	5.3	4.7	5.3	15.5	11.7	4.1	3.2	7.2	8.9	12.0	8.6
	(.8)	(1.1)	(1.2)	(1.6)	(1.6)	(2.2)	(1.4)	(1.1)	(1.8)	(2.1)	(2.6)	(4.4)
Not at all well	6.4	1.0	2.0	4.3	19.3	16.4	2.2	2.9	8.0	9.3	48.3	57.4
	(.7)	(.5)	(.8)	(1.4)	(1.8)	(2.5)	(1.0)	(1.0)	(1.9)	(2.1)	(4.0)	(7.7)
N	6,745	932	605	457	882	725	672	770	638	416	572	76
Percentage able to read/ understand common signs:												
Very well	75.9	83.8	80.7	78.2	56.7	52.1	81.6	81.2	74.2	73.4	36.1	32.7
	(1.3)	(1.8)	(2.3)	(2.9)	(2.3)	(3.4)	(2.7)	(2.4)	(3.0)	(3.3)	(3.9)	(7.2)
Pretty well	16.0	13.0	14.5	15.6	24.1	17.0	13.8	14.5	16.1	17.5	19.8	5.8
	(1.1)	(1.6)	(2.0)	(2.5)	(2.0)	(2.5)	(2.4)	(2.1)	(2.5)	(2.8)	(3.2)	(3.6)
Not very well	4.7	2.7	4.2	4.3	9.3	11.6	2.5	3.6	5.6	4.6	11.0	12.6
	(.6)	(.8)	(1.2)	(1.4)	(1.3)	(2.2)	(1.1)	(1.1)	(1.6)	(1.5)	(2.5)	(5.1)
Not at all well	3.4	0.4	0.7	2.0	9.9	19.3	2.0	0.7	4.1	4.5	33.1	48.9
	(.5)	(.3)	(.5)	(1.0)	(1.4)	(2.7)	(1.0)	(.5)	(1.4)	(1.5)	(3.8)	(7.6)
N	6,743	928	610	456	873	719	673	772	643	417	573	79
Percentage able to count change:												
Very well	61.4	70.9	68.2	73.9	35.8	57.1	70.2	68.8	56.2	59.4	13.5	17.0
	(1.4)	(2.2)	(2.7)	(3.1)	(2.2)	(3.3)	(3.2)	(2.8)	(3.4)	(3.6)	(2.7)	(5.8)
Pretty well	21.8	21.8	21.5	17.2	23.2	27.9	20.7	20.3	20.2	18.3	13.9	17.1
	(1.2)	(2.0)	(2.4)	(2.6)	(1.9)	(3.0)	(2.8)	(2.4)	(2.8)	(2.9)	(2.8)	(5.8)
Not very well	10.6	5.7	8.0	4.5	24.1	9.3	7.7	7.7	15.0	15.1	23.5	14.6
	(.9)	(1.1)	(1.6)	(1.5)	(1.9)	(1.9)	(1.8)	(1.6)	(2.5)	(2.6)	(3.4)	(5.5)
Not at all well	6.2	1.6	2.3	4.3	16.9	5.7	1.4	3.1	8.6	7.2	49.1	51.4
	(.7)	(.6)	(.9)	(1.4)	(1.7)	(1.6)	(.8)	(1.0)	(1.9)	(1.9)	(4.0)	(7.7)
N	6,749	930	605	455	880	731	670	771	640	418	572	77

Note: Standard errors are in parentheses.
Source: Parent interviews.

Table 2-7

VARIATIONS IN FUNCTIONAL MENTAL SKILLS SCALE SCORES BY PRIMARY DISABILITY CATEGORY

Disability Category	Percentage With Functional Skills Scale Score[†] of: High	Medium	Low	Mean Scale Score	N
All conditions	56.9 (1.5)	35.6 (1.4)	7.5 (.8)	13.8 (.1)	6,585
Learning disabled	66.0 (2.3)	32.6 (2.2)	1.4 (.6)	14.6 (.1)	911
Emotionally disturbed	65.3 (2.8)	31.6 (2.7)	3.1 (1.0)	15.5 (.1)	593
Speech impaired	68.9 (3.2)	26.0 (3.1)	5.1 (1.5)	14.4 (.2)	452
Mentally retarded	32.8 (2.2)	45.5 (2.3)	21.6 (1.9)	11.7 (.2)	860
Visually impaired	31.8 (3.2)	47.9 (3.4)	20.3 (2.8)	12.1 (.2)	695
Hard of hearing	60.7 (3.4)	37.6 (3.4)	1.7 (.9)	14.3 (.2)	659
Deaf	44.3 (3.1)	52.1 (3.1)	3.6 (1.2)	13.7 (.2)	743
Orthopedically impaired	50.5 (3.5)	41.4 (3.4)	8.1 (2.0)	13.5 (.2)	628
Other health impaired	57.3 (3.7)	32.2 (3.5)	10.5 (2.3)	13.6 (.2)	411
Multiply handicapped	12.8 (2.7)	35.5 (3.9)	51.6 (4.1)	8.5 (.3)	559
Deaf/blind	6.8 (4.0)	29.1 (7.2)	64.1 (7.6)	7.5 (.6)	74

Note: Standard errors are in parentheses.

[†] The functional mental skills scale ranges from 4 to 16. High ability is a score of 15 or 16, medium is a score of 9 to 14, and low is a score of 4 to 8.

Source: Parent interviews.

As with the self-care scale, there was considerable diversity within most disability categories. This diversity is contributed to by the presence of youth in many categories with additional disabilities other than their primary disability, as discussed earlier. More than half of youth (53%) who scored in the lowest category on the functional ability scale had an additional disability. Mental retardation was the most frequent additional disability among low scorers from most categories. Large percentages of low scorers whose primary classification was multiply handicapped (70%), orthopedically impaired (53%), deaf/blind (51%), and deaf (47%) were reported to have mental retardation as well.

Functional mental skills and self-care abilities were related to each other for many youth. For example, 77% of youth who were low scorers on the self-care abilities scale also were low scorers on the functional mental skills scale, indicating both physical and mental deficits. Among high scorers on the self-care abilities scale, functional mental skills were more diverse; 9% of those with high self-care abilities were low scorers on the functional mental skills scale, 48% were rated as having medium functional mental skills, and 43% had high functional mental skills.

Measured IQ

The measures discussed in the two previous sections relate to a youth's ability to perform very basic tasks, as assessed by parents at the time they were interviewed. In contrast, intelligence tests are meant to measure general mental ability, "the aggregate or global capacity of the individual to act purposefully, to think rationally, and to deal effectively with his environment" (Wechsler, 1958, p. 7). The extent to which they accomplish this is controversial. There is wide agreement that a particular intelligence test measures only certain types of intelligence. For instance, most tests of global intelligence do not measure creative ability. Further, experts caution against interpreting results of such tests as measures of underlying ability, and state that "scores on intelligence tests are nothing more than descriptions of a person's level of performance on the set of tasks measured by the test" (Brown, 1973, p. 293). Furthermore, there is controversy over possible cultural bias in the tests (Gould, 1981).

Nevertheless, proponents argue that intelligence tests are both valid and reliable when used as intended, and they are widely used in schools. In many states, scores on intelligence tests (known as IQ) are used as a criterion for classification as mentally retarded. Hence, understanding the distribution of measured IQ of youth with disabilities adds to our understanding of the kinds of educational programs they were provided and their accomplishments in and out of school.

Of the youth who were tested, the majority most recently took Wechsler intelligence tests; 71% took the Wechsler Intelligence Scale for Children, and 14% took the Wechsler Adult Intelligence Scale. Scores on the Wechsler tests are standardized to the general population, with a mean of 100 and a standard deviation of 15. Another 8% of the youth who were tested took the Stanford-Binet, which has a mean of 100 and a standard deviation of 16. Experts cite evidence from clinical experiments that the Wechsler and Stanford-Binet tests are highly reliable. The Wechsler tests have both verbal and nonverbal components, whereas the Stanford-Binet is more heavily weighted toward verbal ability (Brown, 1973).

Table 2-8 indicates that the mean IQ score of youth with disabilities overall was 79. The mean scores for most categories were in the low normal range; only for youth classified as deaf was the average score over 90 (mean IQ score of 93). Youth classified as hard of hearing, learning disabled, visually impaired, and emotionally disturbed had mean IQ scores ranging from 86 to 89. Logically, the lowest average scores were for youth with mental retardation (60) and for those classified as multiply handicapped, many of whom also had mental retardation (mean IQ score of 50). Within each disability category, the scores were fairly normally distributed around the group's mean.

Table 2-8

VARIATIONS IN IQ SCORES BY PRIMARY DISABILITY CATEGORY

	Percentage of Youth with IQ					Mean	
Disability Category	>105	91-105	75-90	53-74	<53	IQ	N
All conditions	6.0	19.1	41.0	24.3	9.6	79.3	4,383
	(.8)	(1.3)	(1.7)	(1.4)	(1.0)	(.6)	
Learning disabled	7.9	25.8	52.6	12.3	1.3	87.1	748
	(1.4)	(2.3)	(2.6)	(1.7)	(.6)	(.7)	
Emotionally disturbed	9.3	29.2	43.2	16.2	2.2	86.4	427
	(2.8)	(3.1)	(3.3)	(2.5)	(1.0)	(1.1)	
Speech impaired	6.3	16.0	45.4	26.3	6.0	80.8	212
	(2.4)	(3.6)	(4.9)	(4.4)	(2.4)	(1.7)	
Mentally retarded	0.0	0.9	16.1	53.9	9.1	60.2	803
	(.0)	(0.4)	(1.7)	(2.3)	(2.1)	(.8)	
Visually impaired	21.3	22.5	30.4	17.2	8.6	86.7	465
	(3.6)	(3.7)	(4.0)	(3.3)	(2.4)	(2.0)	
Hard of hearing	13.6	31.7	37.9	12.8	3.5	89.1	338
	(3.3)	(4.5)	(4.7)	(3.3)	(1.8)	(1.7)	
Deaf	25.6	30.2	28.7	12.1	3.4	93.0	468
	(3.2)	(3.7)	(3.4)	(2.4)	(1.4)	(1.5)	
Orthopedically impaired	5.1	15.0	41.6	28.0	10.3	77.3	355
	(1.9)	(3.1)	(4.3)	(4.0)	(2.7)	(1.7)	
Other health impaired	5.7	24.6	30.7	27.8	11.1	77.9	143
	(3.0)	(5.6)	(6.0)	(5.8)	(4.1)	(2.8)	
Multiply handicapped	1.4	3.9	14.0	27.1	53.6	49.8	396
	(2.1)	(1.8)	(3.2)	(4.1)	(4.6)	(2.4)	

Notes: Standard errors are in parentheses.

"All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Students' school records for their most recent school year.

It is important to note that IQ data were not available for all youth and that the percentage of students for whom IQ scores were available varied considerably between disability categories.[*] For example, IQ scores were present in school records for 86% of youth classified as mentally retarded and for 84% of those classified as learning disabled, but for only 47% of youth with other health impairments and 50% of youth with speech impairments.

The relatively high rate of missing data for youth in some categories raised the question of whether available IQ scores were systematically biased downward. Were scores available more frequently for youth for whom average IQ was questioned, i.e., those at the lower end of the average intelligence scale? Perhaps IQ tests were not as routinely given for youth for whom there was little question of at least average IQ.

To address this issue, we examined the functional ability levels of youth with and without IQ scores in each disability category. To the extent that functional ability correlates with measured intelligence,[†] if the hypothesized bias were present, we would expect lower functional ability scores for youth with IQ scores and higher functional ability scores for youth without IQ data. However, there were no significant differences in functional mental skills scale scores for the majority of youth (those classified as emotionally disturbed, hard of hearing, learning disabled, and visually impaired), indicating an absence of bias for youth in those categories. However, youth classified as orthopedically impaired, other health impaired, and speech impaired with IQ data had significantly lower functional mental skills scale scores than those for whom IQ data were missing ($p<.05$). Thus, there appears to be some downward bias in the IQ scores for youth in those categories. However, an opposite relationship of functional abilities and presence of IQ scores was observed for youth in the deaf/blind, multiply handicapped, and mentally retarded categories. For these youth, functional abilities were significantly higher for those with IQ scores ($p<.001$). For these categories, an upward bias in IQ scores is apparent.

One possible explanation for the systematic differences is that some districts may have tested only those youth with orthopedic impairments, speech impairments, and other health impairments who were having explicit educational performance difficulties or for whom mental retardation was suspected. At the same time, it is likely that lower-functioning youth classified as deaf/blind, multiply handicapped, or mentally retarded were not able to be tested accurately, while testing of higher-functioning youth in these categories was possible.

Differences in abilities only partially explain why scores were available only for some youth. In all disability categories, scores were available for some youth at all functional levels. The most likely explanation for this seemingly random component of the availability of IQ scores is variation in school and district practices in the extent to which IQ testing was conducted as part of special education assessment procedures.

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[*] See Appendix C for the percentage of youth in each disability category for whom school record information was obtained, but IQ scores were missing.

[†] Simple correlation = ./54; $p<.001$.

Age at Which Youth Began Having Trouble with Disabilities

The final aspect of disability addressed by the NLTS concerns the age at which parents reported that youth began having trouble with a disability. We recognize that the NLTS data reflect only parent perceptions of their children's disability, and some inaccuracy of memory is assumed. However, this dimension of disability is of interest because it provides at least a "ballpark" estimate of the relative length of time for which the experiences of youth had been affected by their disabilities. Table 2-9 demonstrates that most youth were reported to have

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Table 2-9

AGE AT WHICH YOUTH WERE REPORTED BY PARENTS AS FIRST EXPERIENCING DIFFICULTY WITH DISABILITIES

	Percentage Reported as First Experiencing Difficulty:					
Disability Category	Before Age 1	Ages 1-4	Ages 5-8	Ages 9-12	Ages 13+	N
All conditions	16.5 (1.1)	10.4 (.9)	42.7 (1.5)	22.4 (1.3)	8.0 (.8)	6,454
Learning disabled	6.6 (1.2)	7.3 (1.3)	50.3 (2.5)	28.0 (2.2)	7.8 (1.3)	852
Emotionally disturbed	8.9 (1.7)	11.3 (1.9)	41.4 (3.0)	22.1 (2.5)	16.2 (2.2)	546
Speech impaired	17.1 (2.8)	15.2 (2.6)	38.0 (3.6)	21.4 (3.0)	8.3 (2.0)	420
Mentally retarded	32.6 (2.2)	14.7 (1.8)	34.3 (2.2)	13.0 (1.6)	5.5 (1.1)	832
Visually impaired	68.9 (3.1)	10.8 (2.0)	11.5 (2.2)	5.2 (1.5)	3.6 (1.3)	719
Hard of hearing	45.2 (3.5)	24.5 (3.1)	21.3 (2.9)	7.5 (1.9)	1.5 (.9)	653
Deaf	67.1 (2.8)	26.0 (2.0)	5.7 (1.4)	.8 (.5)	.4 (.4)	768
Orthopedically impaired	57.6 (3.5)	11.1 (2.3)	10.8 (2.2)	10.5 (2.2)	9.9 (2.1)	621
Other health impaired	29.3 (3.6)	14.8 (2.9)	20.2 (3.1)	21.9 (3.2)	13.7 (2.7)	376
Multiply handicapped	59.1 (3.9)	18.5 (2.9)	13.2 (2.7)	7.1 (2.0)	2.1 (1.1)	588
Deaf/blind	88.4 (4.9)	6.4 (3.3)	1.5 (1.9)	3.7 (2.9)	0.0 (.0)	79

Note: Standard errors are in parentheses.

Source: Parent interviews.

experienced disability-related problems well before entering secondary school. Overall, 16% of youth were reported to have begun having disability-related problems before they were a year old, and another 10% had such problems before reaching school age. The elementary school years were the time in which the largest percentage of youth were reported to have begun experiencing trouble with a disability (65%). In all, more than 9 in 10 youth reportedly began having disability-related difficulties before they were 13 years old. Only for youth who were emotionally disturbed or other health impaired were more than 10% reported to have begun having difficulty after age 12 (16% and 14%, respectively).

The typical age at which youth began having trouble with their disabilities varied for youth in different disability categories. For example, youth with sensory impairments were most likely to be reported as having experienced difficulty before the age of 1 year. According to parent reports, more than two-thirds of youth who were deaf (67%), visually impaired (69%), or deaf/blind (88%) experienced difficulty at that early age. In contrast, students classified as learning disabled (50%), emotionally disturbed (41%), or speech impaired (38%) were most likely to have begun experiencing difficulties in the early elementary grades.

This discussion of disability-related characteristics of youth has focused on one of the major factors that distinguished these youth from the general population: the presence of a disability. It has confirmed the logically expected variation in characteristics of youth in different disability categories. It also has demonstrated the wide variation in characteristics and abilities of youth who shared the same categorical label. Now we move beyond disability to examine demographic characteristics of youth with disabilities. Along many of these dimensions, too, the population of youth with disabilities differed from youth as a whole.

Selected Demographic Characteristics

Although we know much about youth when we understand their abilities and disabilities, there is much more to know before we have a thorough picture of the factors that might affect the kinds of educational programs and services they were provided and the transition outcomes they achieved.

A variety of demographic characteristics—including gender, ethnicity, family socioeconomic status (SES), and community location—are important contextual factors. In addition to furthering our understanding of youth with disabilities, demographic characteristics are important to keep in mind when interpreting results concerning the transition experiences of youth with disabilities to avoid attributing differences in outcomes that arise from demographic differences to the presence or absence of a disability. These demographic characteristics of youth are described below.

Gender

One of the most powerful predictors of an individual's experiences is gender. A vast body of research has shown that the schooling, employment, residential, and marital patterns of young males and females in the general population differ. Figure 2-1 shows the percentage of males among youth with disabilities. Although the general population consists of approximately equal numbers of males and females, among young people with disabilities, males outnumbered females by about 2 to 1. Males made up the majority in every disability category except deaf/blind, and the ratio of males to females was exceptionally high—about 3 to 1—among youth classified as learning disabled or emotionally disturbed. A notably high percentage of youth classified as multiply handicapped also were male (65%).

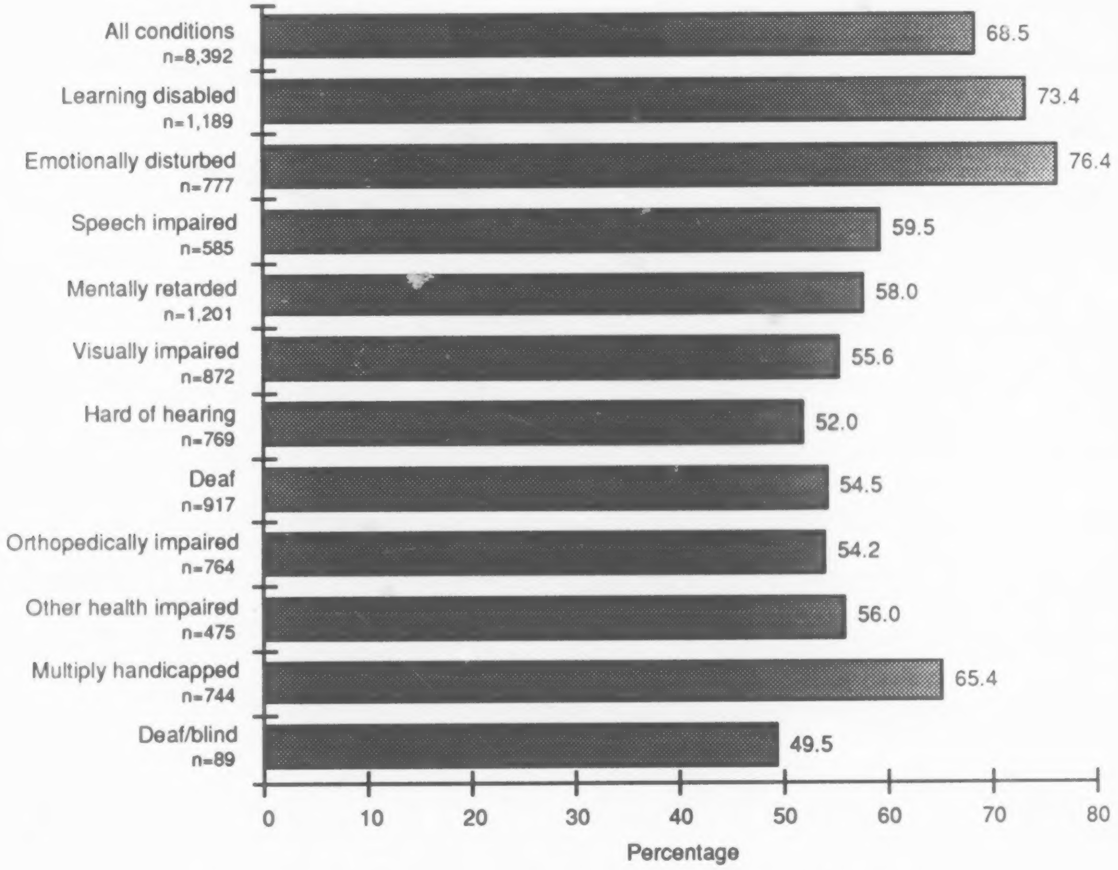

FIGURE 2-1 MALES AMONG YOUTH WITH DISABILITIES

Source: Parent interviews and school records abstracts.

Ethnicity

For many years, research has been concerned with the differential educational experiences and outcomes of minority youth. Within the field of special education, concerns surrounding ethnicity have focused on issues regarding overidentification of minorities in some disability categories and the need to distinguish learning difficulties resulting from limited proficiency in English from those due to disability.

Table 2-10 presents the ethnic distribution of 1985-86 special education students, and of the general population of youth aged 15 to 19. Almost two-thirds of students in special education who were enrolled in secondary school in 1985-86 were white, 24% were black, 8% were Hispanic, and 3% were reported to belong to other ethnic groups (including Asian, Pacific Islander, American Indian, or Alaskan native). The percentage of students in special education who were black was higher than the corresponding percentage in the general population of

Table 2-10

ETHNIC BACKGROUNDS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Percentage of Youth:		
		In the General Population	
Ethnic Background	With Disabilities	CES[†]	NLSY[§]
White	65.0 (1.4)	70.0	73.0
Black	24.2 (1.2)	12.2	14.0
Hispanic	8.1 (.8)	12.6	6.2
Other	2.7 (.4)	5.2	6.9
N	7,142	14,825	21,006

Note: Standard errors are in parentheses.

[†] High School and Beyond study (CES, 1987).

[§] National Longitudinal Survey of Youth (U.S. Department of Labor, 1979 to 1983, unpublished). Data are for youth aged 15 to 20 who were in secondary school or had been in secondary school in the current or previous school year.

Source of NLTS data: School district special education rosters and parent interviews.

youth aged 15 to 19 as reported by the High School and Beyond study for 1980 sophomores or by the National Longitudinal Survey of Youth. Each disability category contained a higher percentage of blacks than did the general population of youth, and there were few significant variations in ethnic distribution between disability categories (see Appendix D, Table D2-1). The only exceptions were significantly lower percentages of students who were white in the speech impaired and other health impaired categories.

Gender and Ethnic Differences in Functional Abilities

Research concerning the transition of youth in the general population and, to a lesser extent, youth with disabilities, has found differences in youths' school achievements and employment experiences depending on their gender and ethnicity. For example, Hasazi, Gordon, and Roe (1985) found a lower rate of employment for female special education graduates than for their male counterparts. One possible explanation for this difference may be that young females' disabilities were more severe than those of young males. To address this possibility, we compared the mean functional mental skills scale scores for males and females and for nonminorities and minorities, as a whole and within each disability category.

As shown in Table 2-11, the mean score of young females on the functional mental skills scale was marginally, but significantly, lower than that of young males (13.4 vs. 14.0; p<.01). Within disability categories, the picture is mixed. In five categories, including the three largest, abilities of females also were marginally lower than those of males. A notable exception is youth classified as other health impaired, among whom males' mean score was significantly lower than females' mean score (12.8 vs. 14.5; p<.001). We also noted that the average IQ was significantly lower for females than for males overall (74 vs. 82; p<.001) and marginally lower in 9 of 11 categories.

Among youth with disabilities overall, there was no difference between nonminorities and minorities in their mean scores on the functional mental skills scale. Within-category differences were mixed and typically small. Exceptions among youth classified as deaf (14.0 vs. 13.2; p<.01), other health impaired (13.2 vs. 14.0; n.s.), and multiply handicapped (8.8 vs. 7.9; n.s.) are worth noting. The lack of significance between youth in the last two categories is most likely the result of small sample sizes. IQ scores were not compared because of variations in policies regarding IQ testing for minorities that may have affected the extent to which IQ data were available for them.

These general patterns suggest that differences in outcomes of young men and women may be somewhat attributable to differences in severity of disability when all youth with disabilities are taken together; it is less clear whether differences within categories were related to systematic differences in severity between males and females. Conversely, differences in the outcomes of minority and nonminority youth in the entire population do not appear be attributable to differences in severity, but differences between minorities and nonminorities in selected disability categories may be.

Table 2-11

VARIATIONS IN FUNCTIONAL MENTAL SKILLS BY GENDER AND ETHNICITY

		Gender		Ethnicity	
Disability Category		Male	Female	Nonminority	Minority
Mean functional mental skills scale score for:					
All conditions		14.0	13.4	13.8	13.8
		(.1)	(.2)	(.1)	(.3)
	N	3,975	2,610	4,251	1,325
Learning disabled		14.7	14.4	14.6	14.7
		(.1)	(.2)	(.1)	(.2)
	N	681	230	662	249
Emotionally disturbed		14.6	14.3	14.5	14.4
		(.1)	(.3)	(.2)	(.2)
	N	455	138	437	156
Speech impaired		14.4	14.4	14.3	14.5
		(.2)	(.3)	(.2)	(.2)
	N	273	179	257	195
Mentally retarded		11.8	11.6	11.6	11.9
		(.2)	(.3)	(.2)	(.3)
	N	486	374	574	285
Visually impaired		12.3	11.9	11.9	12.6
		(.3)	(.4)	(.3)	(.3)
	N	398	297	418	274
Hard of hearing		14.3	14.4	14.5	14.1
		(.2)	(.2)	(.2)	(.2)
	N	338	321	398	258
Deaf		13.6	13.9	14.0	13.2
		(.2)	(.2)	(.2)	(.2)
	N	398	345	450	292
Orthopedically impaired		13.4	13.5	13.5	13.4
		(.3)	(.3)	(.3)	(.3)
	N	332	296	382	246
Other health impaired		12.8	14.5	13.2	14.0
		(.4)	(.3)	(.4)	(.5)
	N	232	179	245	166
Multiply handicapped		8.7	8.1	8.8	7.9
		(.4)	(.5)	(.8)	(.5)
	N	348	211	382	176
Deaf/blind		7.5	7.5	7.9	—
		(1.0)	(.8)	(.8)	—
	N	34	40	46	28

Note: Standard errors are in parentheses.

Source: Parent interviews.

Location

Another demographic factor found to affect youths' schooling and employment experiences is location in an urban, suburban, or rural area. Schools in districts classified as suburban typically are more affluent and have higher mean achievement test scores than schools in districts classified as urban or rural. Similarly, Hasazi et al. (1985) found that youth with disabilities who had attended school in small urban districts had a higher employment rate than youth who had attended school in large metropolitan districts or rural districts. Given these differences, we investigated how youth with disabilities were distributed among urban, suburban, and rural areas (Table 2-12).

Table 2-12

COMMUNITY LOCATION OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

Location	Youth With Disabilities %	Youth With Disabilities S.E.	Percentage of Youth In the General Population†
Urban	29.6	1.3	22.3
Suburban	33.6	1.3	47.9
Rural	36.8	1.4	28.7
N	6,190		

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† CES (1987), p. 8.1.2. Data refer to sophomores in high school in 1980.

Source: Data published by Quality Education Data were used to classify the location of each youth's school as urban, suburban, or rural. See Appendix C for the definition of these categories.

Youth with disabilities who attended schools in urban, suburban, and rural districts formed three groups of roughly equal size. Compared with youth in the general population, youth with disabilities were much less likely to have attended schools in suburban districts (34% vs. 48%). However, the percentage of youth attending schools in urban districts was only marginally higher for youth with disabilities as a whole than for the general population. Greater differences in urbanicity were apparent for youth in some disability categories, as demonstrated in Table 2-13.

Relatively high proportions of youth classified as emotionally disturbed (40%), visually impaired (44%), and hard of hearing (42%), and an especially high proportion of youth classified as other health impaired (57%) attended schools in urban areas. One possible explanation for this pattern is that families of youth with these types of disabilities may have been attracted

Table 2-13

VARIATIONS IN COMMUNITY LOCATION OF YOUTH WITH DISABILITIES BY PRIMARY DISABILITY CATEGORY

	Percentage Attending School in Area That Was:			
Disability Category	Urban	Suburban	Rural	N
All conditions	29.6	33.6	36.8	6,190
	(1.3)	(1.3)	(1.4)	
Learning disabled	28.2	35.8	36.1	1,055
	(2.0)	(2.1)	(2.1)	
Emotionally disturbed	39.5	34.0	26.5	618
	(2.8)	(2.7)	(2.5)	
Speech impaired	30.3	34.8	34.9	507
	(3.0)	(3.1)	(3.1)	
Mentally retarded	25.8	28.4	45.8	1,016
	(1.8)	(1.9)	(2.1)	
Visually impaired	43.7	33.7	22.5	462
	(4.1)	(3.9)	(3.4)	
Hard of hearing	42.3	33.6	24.1	627
	(3.6)	(3.4)	(3.1)	
Deaf	41.4	50.8	7.8	368
	(4.3)	(4.3)	(2.3)	
Orthopedically impaired	38.5	35.0	26.5	667
	(3.3)	(3.2)	(3.0)	
Other health impaired	57.4	17.6	25.0	394
	(3.8)	(2.9)	(3.3)	
Multiply handicapped	36.0	33.4	30.6	461
	(3.8)	(3.7)	(3.7)	

Notes: Standard errors are in parentheses.

"All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Data published by Quality Education Data were used to classify the location of each youth's school as urban, suburban, or rural. See Appendix C for the definition of these categories.

to urban areas because of the more sophisticated disability-related services often available there. In contrast, a high proportion of youth classified as deaf attended schools in suburban areas (51%), and a surprisingly high proportion of youth classified as mentally retarded attended rural schools (46%). The reasons for these patterns are not clear.

The distribution of youth with disabilities across census regions approximates the distribution of youth generally, as shown in Table 2-14. Varying state classification practices may lead to higher or lower rates of inclusion of youth in special education programs, but these variations are not so great that their effects are seen when the data are examined by geographic region.

Table 2-14

REGION OF RESIDENCE OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

Region	Youth With Disabilities %	Youth With Disabilities S.E.	Percentage of Youth in the General Population[†]
New England	3.4	.5	5.3
Middle Atlantic	17.1	1.0	15.2
East North Central	16.6	1.0	17.5
West North Central	7.4	.7	7.3
South Atlantic	18.9	1.0	17.3
East South Central	7.6	.7	6.6
West South Central	9.3	.8	11.3
Mountain	7.1	.7	5.4
Pacific	12.6	.9	14.4
N	8,408		

[†] U.S. Bureau of the Census (1988b), Table 5, pp. 15ff. Census estimates refer to youth aged 15 to 24 in July 1987.

Household Composition

The family or household unit from which youth come can be an important context for acquiring values, skills, and aspirations. The NLTS has sought to describe several characteristics of these households.

Table 2-15 presents information on the household composition of youth with disabilities. Youth with disabilities were more likely to be from single-parent households (37%) than were youth generally (26%). Learning problems or disabilities of the household head were reported for the households of 11% of youth with disabilities, and one or more other children with learning problems or disabilities were present in the households of 19% of youth with disabilities.

Table 2-15

ASPECTS OF THE HOUSEHOLD COMPOSITION OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

Household Composition	Youth with Disabilities %	Youth with Disabilities S.E.	Percentage of Youth in the General Population[†]
Percentage of youth from households with:			
A single parent	36.8	1.4	25.6
A disabled household head	11.0	.9	
Other disabled children	19.1	1.2	
N	6,385		
Percentage from households with:			
1 child at home	25.3	1.4	30.2[§]
2 children at home	33.0	1.5	37.3
3 children at home	21.7	1.3	20.0
4 or more children at home	20.0	1.3	12.5
Mean number of children at home	2.5	.0	2.2
N	6,712		

[†] U.S. Bureau of the Census (1988a), Table 9, pp. 45ff. Data refer to youth aged 12 to 17 and living with at least one parent in March 1987.

[§] Number of siblings at home, not number of other children.

Source of NLTS data: Parent interviews.

One in four youth with disabilities came from households with no other children living at home. One-third were in households with 1 other child, 22% in households with 2 other children, and 20% in households with 3 or more other children living at home, with an average of 2.5 children living at home, a rate similar to the average of 2.2 children living at home for youth aged 12 to 17 in the general population.

There were almost no significant differences in household characteristics for youth in different disability categories. One exception involved the frequency with which youth lived in households in which another child also was disabled, which varied from 5% of youth who were deaf/blind to 22% of youth who were classified as emotionally disturbed or mentally retarded.

Socioeconomic Status

Socioeconomic characteristics of a youth's household can influence many aspects of his or her development. The level of income can affect the educational resources and experiences to which a youth has access (Jencks et al., 1972). The educational level of adults in the household can set the standard and expectations for a child's educational achievement. Table 2-16 presents various measures of socioeconomic status of the households of youth with disabilities and youth in the general population.

Table 2-16

SOCIOECONOMIC CHARACTERISTICS OF YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

Socioeconomic Characteristics	Youth with Disabilities %	S.E.	Percentage of Youth in the General Population[†]
Education of household head			
Less than high school	41.0	1.5	22.3
High school graduate	36.0	1.4	38.8
Some college/2-year degree	14.0	1.0	17.8
4 year degree or more	8.9	0.9	21.1
N	6,650		
Annual household income			
Under $12,000	34.8	1.5	18.2[§]
$12,000 to $24,999	33.5	1.5	20.6
$25,000 to $37,999	16.2	1.2	25.4
$38,000 or more	15.4	1.1	35.8
N	6,092		
Receiving public benefits			
Food Stamps	23.7	1.2	12.9[#]
Medicaid or similar coverage	21.6	1.2	12.6[#]
Supplemental Security Income	14.4	1.0	
AFDC	12.5	1.0	12.6[††]
Public Assistance	10.8	.9	
Social Security:			
Disability Benefits (SSDI)	9.6	.9	
Survivors Benefits	8.1	.8	
Unemployment insurance	7.3	.8	
Other benefits	4.3	.6	
Receiving one or more benefits	49.9	1.4	
N	6,631		

[†] U.S. Bureau of the Census (1988a), Table 9, pp. 45 ff. Data refer to youth aged 12 to 17 and living with at least one parent in March 1987.

[§] Note that categorical boundaries are set at $12,500, $25,000, and $40,000 rather than $12,000, $25,000 and $38,000.

[#] U.S. Department of Education (1988b), p. 34. Percentage of households with youth aged 0 to 18 (not youth aged 0 to 18 in households) in 1985.

[††] Ibid., p. 32. Percent of youth aged 0 to 17 in 1985.

Sources: NLTS parent interviews and other sources as described.

The head of household's educational attainment was significantly lower for youth with disabilities than for youth in general. Parents or guardians who had not completed high school were heads of household of 41% of youth with disabilities, compared with 22% of all youth aged 12 to 17 (U.S. Bureau of the Census, 1988). Only 23% of the heads of household of youth with disabilities had attended college, and only 9% had completed a 4-year degree program. Comparable figures for the general population of youth were 39% and 21%, respectively.

Educational attainment of head of household varied considerably across disability categories (see Appendix D, Table D2-2). Although youth in every disability category were more likely than those in the general population to come from households with heads who had not completed high school, especially high percentages of youth classified as emotionally disturbed (44%), speech impaired (46%), and mentally retarded (49%) came from such households. Similarly, although the percentage of college-educated heads of household was lower in every disability category than in the general population, it varied markedly, ranging from 7% and 9% of youth classified as mentally retarded or learning disabled, respectively, to 17% of youth classified as orthopedically or other health impaired.

Typical household income for youth with disabilities was considerably lower than for youth in general. Annual household income was less than $12,000 for 35% of youth with disabilities, and less than $25,000 for 68%. Comparable figures for the general population of youth from 12 to 17 years of age indicate that 18% were in households with incomes of less than $12,500, and 39% were in households with incomes of less than $25,000 (U.S. Bureau of the Census, 1988).[*] Although 36% of the general population of youth were in households with annual incomes of $40,000 or more, only 15% of youth with disabilities were in households with incomes of $38,000 or more. Typical household income levels were relatively uniform across disability categories.

As with educational attainment, household income was lower in every disability category than in the general population (Appendix D, Table D2-2); however, the patterns differed somewhat from those of educational attainment. Very high percentages of youth classified as mentally retarded (42%) and other health impaired (42%) came from households with incomes of less than $12,000 in 1986. Few youth in any category came from affluent families; fewer than 20% in any category came from households with incomes of more than $38,000 per year.

Other indications of economic strain are that about half of all youth with disabilities came from households that were receiving benefits from at least one public source in 1987. The benefits most often received were Food Stamps (24%) and Medicaid or other state-supported health benefits (22%).

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[*] Boundaries for income categories used by the NLTS differ slightly from those used by the U.S. Census ($12,000 versus $12,500 and $38,000 versus $40,000). However, these discrepancies are not responsible for the differences observed between the two populations because they would tend to bias the result of a comparison in the direction opposite to that actually observed.

Figures presented here for youth in the general population are only approximately comparable to NLTS data, but they appear to indicate that youth with disabilities were significantly more likely to come from households receiving such benefits. Further, youth in disability categories for which relatively more frequent medical attention would be required were more likely to have received Medicaid benefits than those in the other disability categories (Appendix D, Table D2-2). Medicaid benefits were received by about one-third of households of youth classified as mentally retarded, visually impaired, deaf, other health impaired, or orthopedically impaired, and by 41% and 53% of youth classified as multiply handicapped or deaf/blind, respectively. Rates at which Supplemental Security Income (SSI) was received by households also varied by disability. SSI was received by about 14% of households overall, but by higher proportions of households for youth classified as orthopedically impaired (40%), deaf (47%), multiply handicapped (47%), and deaf/blind (65%).

Economic Disadvantage Among Youth with Disabilities

In the population of youth with disabilities, as in the population of youth in general, strong links exist among background characteristics such as ethnicity, income, and household characteristics. For example, among youth with disabilities:

- Who were minorities:
  - 58% came from single-parent households.
  - 53% came from households with annual incomes under $12,000.
- Who came from households with annual incomes under $12,000:
  - 52% were minorities.
  - 62% came from one-parent families.
- Who came from single-parent households:
  - 56% were minorities.
  - 57% came from households with annual incomes of under $12,000.

Thus, many youth carried with them the influences of not just one of the characteristics often associated with economic disadvantage, but a cluster of such characteristics, which can be expected to influence their experiences and outcomes in secondary school and in later life.

Age, School Status, and Grade Level

In this section, we shift focus somewhat. Thus far, we have been describing characteristics of secondary special education students using weighted data from the NLTS. Many of the characteristics of youth we have described are fixed attributes, e.g., ethnicity, gender. Other characteristics may change, such as household socioeconomic status, but rarely do so significantly for large groups.

Here, we describe three aspects of youth that change predictably: age, school status, and grade level. These aspects differ from others we have discussed, not just because they are in flux but because the distributions of youth along these dimensions are characteristic of the particular sample of youth included in the NLTS and are not necessarily characteristic of youth with disabilities as a whole. The NLTS purposefully focused on youth who were ages 13 to 21 and in secondary special education in the 1985-86 school year, not all youth of those ages. If we had sampled from all youth with disabilities, rather than just those in secondary school, we would expect youth with a particular kind of disability to be distributed evenly by age, with about the same proportion being 15 as 18 at any given time. However, when only those youth who were in secondary school at a given time are examined, we find many more who were 17 or 18 than who were 19 or 20, for example, because many older youth were no longer in school at those ages.

Despite this complication in understanding the age and school status of youth whose experiences we describe in this volume, it is important to do so. Because the NLTS focuses on adolescents and young adults, knowing their age, their transition stage (in or out of school), and, for students, their grade level, is an important context for interpreting their experiences. To the extent that age serves as an indicator of relative developmental maturity or accumulated experience, it is important to consider possible effects of age differences in addressing a wide variety of analytic issues. School status, a broad classification of youth according to whether or not they had left secondary school, and if so how long ago, plays a fundamental role in all areas of NLTS analysis.

Students' Age in 1987

Table 2-17 provides a summary of the ages in 1987 of youth with disabilities who were secondary special education students in 1985-86. The average age was 17.5 years in 1987. There are significant differences in the age distributions of students in different disability categories because of variations between categories in the age at which students typically leave secondary school. For example, the U.S. Department of Education reports that among students who were ages 16 to 21 in 1987, 14% of special education students with learning disabilities left school at ages 20 or 21, compared with 27% of students with mental retardation and 50% of students with multiple handicaps (U.S. Department of Education, 1988; Table BF2). This fact that youth in some categories typically remained in school longer is reflected in Table 2-17.

The age distribution in Table 2-17 also reflects an artifact of the NLTS sampling approach. As mentioned earlier in this chapter, the NLTS sampled students who were aged 13 to 21 and who were in grades 7 or above or were not assigned to a grade level. Students who were age 13 and in 6th grade were not included. Further, analyses of the school districts included in the NLTS sample revealed an underrepresentation of districts that served kindergarten through 8th grade only (Javitz and Wagner, 1990). These two aspects of the sampling approach lead to an underrepresentation of younger students, who by 1987 would have been 15 or 16 years old. This underrepresentation appears in Table 2-17 as a smaller percentage of 15- to 16-year-olds relative to 17- to 18-year-olds; in the absence of the effects of sampling artifacts, we would expect fewer 17- to 18-year-olds because some students would have dropped out by that age.

The implications of these age-related issues should be kept in mind as readers interpret findings in this report. To the extent that younger students differ from older students, the underrepresentation of younger students could bias results for the full sample of students to an unknown degree. Further, because the age distribution of students differs by disability category, those categories with larger percentages of younger students (e.g., speech impaired) would be particularly affected by this phenomenon. Key findings regarding school experiences are reported separately by students' grade level, and key transition outcomes are reported by age group or length of time out of school so that readers can determine whether grade- or age-related differences might be influencing findings.

Table 2-17

AGE IN 1987 OF YOUTH WITH DISABILITIES WHO WERE SECONDARY SPECIAL EDUCATION STUDENTS IN 1985-86

	Mean	Percentage in 1987 Who Were Age:				
Disability Category	Age	15-16	17-18	19-20	21+	N
All conditions	17.5	33.1	38.1	22.9	5.9	8,408
	(.0)	(1.2)	(1.3)	(1.1)	(.6)	
Learning disabled	17.3	34.8	40.7	21.6	2.9	1,191
	(.1)	(2.0)	(2.1)	(1.7)	(.7)	
Emotionally disturbed	17.3	36.9	39.0	20.3	3.8	779
	(.1)	(2.4)	(2.5)	(2.0)	(1.0)	
Speech impaired	16.9	48.7	33.1	16.1	2.1	588
	(.1)	(3.0)	(2.9)	(2.2)	(.9)	
Mentally retarded	18.1	26.6	33.5	27.4	12.5	1,204
	(.1)	(1.8)	(1.8)	(1.7)	(1.3)	
Visually impaired	17.8	29.4	37.1	24.3	9.2	875
	(.1)	(2.8)	(3.0)	(2.7)	(1.8)	
Hard of hearing	17.8	30.9	36.1	21.8	11.1	770
	(.1)	(3.0)	(3.1)	(2.7)	(2.0)	
Deaf	18.5	21.9	29.4	27.8	20.9	918
	(.1)	(2.3)	(2.5)	(2.4)	(2.2)	
Orthopedically impaired	18.0	25.1	35.3	31.0	8.6	764
	(.1)	(2.7)	(3.0)	(2.9)	(1.7)	
Other health impaired	17.6	29.2	40.5	23.5	6.8	475
	(.1)	(3.1)	(3.4)	(2.9)	(1.7)	
Multiply handicapped	18.3	30.5	27.7	20.5	21.3	744
	(.2)	(3.2)	(3.1)	(2.8)	(2.9)	
Deaf/blind	20.3	9.9	20.5	14.4	55.2	100
	(.3)	(4.0)	(5.5)	(4.7)	(6.7)	

Note: Standard errors are in parentheses.

Source: Parent interviews and school district special education rosters.

School Enrollment

Age, of course, is related to secondary school enrollment in that, as youth age, they move through secondary school and into adult life. The secondary special education students of 1985-86 can be divided into three broad groups according to their school enrollment status in the summer/fall of 1987. Table 2-18 shows that almost two-thirds of the weighted sample of NLTS youth were still enrolled in secondary school in 1987. Of the youth who were no longer

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Table 2-18

SCHOOL STATUS IN 1987 OF YOUTH WITH DISABILITIES WHO WERE ENROLLED IN SECONDARY SCHOOL IN 1985-86

	Percentage of Youth			
Disability Category	In School	Out <1 Year	Out 1-2 Years	N
All conditions	64.6 (1.2)	18.1 (1.0)	17.3 (1.0)	8,278
Learning disabled	66.8 (2.0)	16.4 (1.6)	16.8 (1.6)	1,169
Emotionally disturbed	58.6 (2.5)	22.0 (2.1)	19.3 (2.0)	761
Speech impaired	73.3 (2.7)	15.7 (2.2)	11.0 (1.9)	576
Mentally retarded	60.9 (1.9)	21.0 (1.6)	18.1 (1.5)	1,188
Visually impaired	65.9 (3.0)	17.4 (2.4)	16.7 (2.3)	867
Hard of hearing	65.7 (3.1)	16.5 (2.4)	17.8 (2.5)	759
Deaf	56.8 (2.7)	20.9 (2.2)	22.3 (2.3)	909
Orthopedically impaired	62.0 (3.1)	22.0 (2.6)	16.0 (2.3)	748
Other health impaired	69.5 (3.2)	13.5 (2.4)	17.0 (2.6)	475
Multiply handicapped	64.9 (3.4)	14.8 (2.5)	20.3 (2.8)	735
Deaf/blind	49.5 (6.8)	15.7 (4.9)	34.8 (6.5)	99

Note: Standard errors are in parentheses.

Source: Parent interviews.

enrolled in secondary school, about half (18%) had left either during or at the end of the 1986-87 school year and had been out of school for less than 1 year at the time of the parent interview. Half (17%) had left school during or at the end of the 1985-86 school year and had been out of school from 1 to 2 years by 1987.

Percentages of youth still enrolled in secondary school in 1987 ranged from 50% of youth classified as deaf/blind to 73% of youth classified as speech impaired. These differences among disability categories relate to the differences in the age distribution, as discussed above, and differences in school-leaving patterns, particularly dropping out, during the period between sample selection and the parent interview.

Table 2-19 presents average age in 1987 of the NLTS weighted sample by disability category and school status. The average age of youth who were still in school in 1987 was 16.7 years overall, ranging from 16.3 years for youth who were speech impaired to 18.6 years for youth who were deaf/blind. On average, youth out of school for up to 1 year were about 1.5 to 2 years older than those still in school. Youth out of school between 1 and 2 years tended to be 5 to 18 months older than those who had been out of school for 1 year or less.

Grade Level

For youth still in secondary school, a final factor regarding their developmental stage that is an important context for understanding the programs they received and their secondary school performance is their grade level assignment. For example, some courses or support services are only offered at particular grade levels. Further, research has suggested that student performance in school may vary with grade level; hence, many of the NLTS analyses of school experiences and student performance differentiate students by their grade level in their most recent school year.

As shown in Table 2-20, the large majority (76%) of youth who were in secondary school in 1985-86 and still in school in 1986-87 were by that time in grades 9 through 12, which are typically considered high school grade levels. About 14% were in middle school grades (7 or 8), and 10% of students were not assigned to a particular grade level. However, the percentage of unassigned students varied widely, with significantly higher percentages of students not assigned to a grade level in such categories as deaf/blind (89%), mentally retarded (24%), orthopedically impaired (17%), and multiply handicapped (60%) than learning disabled or emotionally disturbed, for example (2% and 7%; p<.001).

Whether students were assigned to a particular grade level at least in part reflects the severity of their disabilities, in that unassigned students appeared to be more severely impaired than other students. For example, 60% of students assigned to a particular grade level scored high on the functional mental skills scale, while only 16% of those not assigned to a grade level had high scores (p<.001). Similarly, the average IQ score for unassigned students was 52, compared with 82 for students assigned to a particular grade level (p<.001).

Table 2-19

MEAN AGE IN 1987 OF YOUTH WITH DISABILITIES WHO WERE SECONDARY SPECIAL EDUCATION STUDENTS IN 1985-86, BY SCHOOL STATUS

		Average Age of Youth Who Were:		
Disability Category		In School	Out <1 Year	Out 1-2 Years
All conditions		16.7	18.6	19.3
		(.0)	(.1)	(.1)
	N	4,929	1,644	1,705
Learning disabled		16.6	18.5	19.1
		(.1)	(.1)	(.1)
	N	610	236	323
Emotionally disturbed		16.6	18.1	18.6
		(.1)	(.2)	(.2)
	N	387	186	188
Speech impaired		16.3	18.5	19.1
		(.1)	(.2)	(.2)
	N	339	129	108
Mentally retarded		17.2	19.0	19.9
		(.1)	(.1)	(.2)
	N	668	274	246
Visually impaired		16.8	19.0	20.0
		(.1)	(.2)	(.3)
	N	387	157	148
Hard of hearing		16.8	19.1	20.3
		(.1)	(.2)	(.3)
	N	493	150	116
Deaf		17.2	19.5	20.8
		(.1)	(.2)	(.2)
	N	538	177	194
Orthopedically impaired		17.2	18.9	20.0
		(.1)	(.2)	(.2)
	N	469	137	142
Other health impaired		16.9	18.9	19.3
		(.1)	(.3)	(.3)
	N	314	72	81
Multiply handicapped		17.5	19.6	19.8
		(.2)	(.4)	(.5)
	N	497	111	127
Deaf/blind		18.6	—	22.6
		(.4)	—	(.2)
	N	52	15	32

Note: Standard errors are in parentheses.

Source: Age data come from parent interviews and school/district special education rosters. School status data come from parent interviews and students' school records.

Table 2-20

GRADE LEVEL ASSIGNMENTS IN THE 1986-87 SCHOOL YEAR OF STUDENTS WITH DISABILITIES

	Percentage of Students In:				
Disability Category	Grade 7 or 8	Grade 9 or 10	Grade 11 or 12	Ungraded Programs	N
All conditions	14.0 (1.2)	44.3 (1.7)	32.1 (1.6)	9.6 (1.0)	5,035
Learning disabled	15.3 (2.0)	47.1 (2.7)	35.1 (2.6)	2.4 (.8)	659
Emotionally disturbed	14.6 (2.4)	53.4 (3.3)	24.9 (2.9)	7.1 (1.7)	424
Speech impaired	21.3 (3.1)	50.9 (3.8)	25.3 (3.3)	2.5 (1.2)	345
Mentally retarded	10.1 (1.5)	36.3 (2.3)	29.1 (2.2)	24.5 (2.1)	757
Visually impaired	13.9 (2.8)	38.5 (4.0)	34.8 (3.9)	12.7 (2.7)	550
Hard of hearing	9.3 (2.0)	32.5 (3.2)	45.6 (3.4)	12.6 (2.3)	582
Deaf	13.3 (2.8)	44.1 (4.1)	37.3 (4.0)	5.3 (1.8)	483
Orthopedically impaired	13.3 (2.6)	31.7 (3.6)	37.8 (3.7)	17.1 (2.9)	458
Other health impaired	14.8 (3.3)	38.5 (4.5)	34.2 (4.4)	12.5 (3.1)	258
Multiply handicapped	6.8 (2.2)	18.0 (3.3)	14.8 (3.1)	60.4 (4.2)	473
Deaf/blind	.7 (1.6)	2.3 (3.0)	7.6 (5.3)	89.4 (6.1)	46

Note: Standard errors are in parentheses.

Source: Students' school records.

Summary

This chapter has described youth with disabilities in the following ways:

- What were the disabilities of secondary special education students? More than half of youth were classified by their schools or school districts as learning disabled (56%), and another 24% were classified as mentally retarded. Along with those classified as emotionally disturbed (10%), these youth were 90% of secondary students in special education. Sensory and physical impairments were relatively rare among these students. Almost 1 in 5 youth were reported to have an additional disability other than their primary disability.
- What were their functional skill levels and IQ? Parents of youth in selected disability categories reported whether youth could do basic self-care tasks for themselves. A scale created from their responses show that 90% of deaf youth scored high on the

scale, compared to 39% of those with multiple handicaps and 28% of those who were deaf/blind. Functional mental skills were a challenge for many youth. Parents of 57% of youth rated their functional mental skills as high; with percentages ranging from 69% of youth with speech impairments and 66% of those with learning disabilities to 13% of those with multiple handicaps and 7% of those who were deaf/blind. The average IQ of youth was 79, with a range from 93 for deaf youth to 50 for those who were deaf/blind.

Examining differences between categories of youth is only part of the challenge of illuminating the powerful influences of youths' disabilities on their experiences and outcomes. We have shown here the wide range of abilities that exists within categories. In the orthopedically impaired category, for example, 20% of youth had IQ scores higher than 90, but 10% had IQ scores below 53; these youth cannot be construed as a homogeneous group when considering issues such as school achievement and postsecondary education.

- At what age did youth begin having trouble with their disabilities? There were marked differences between disability categories in the age at which youth were reported by parents to have begun experiencing difficulties with their disabilities. Half of youth with learning disabilities and 41% of those with emotional disturbances were reported to have begun having difficulties during elementary school. Almost two-thirds of youth with sensory impairments experienced difficulties in their first year of life.
- What were their gender and ethnic backgrounds? Males dominated among youth with disabilities, being the majority in all disability categories except deaf/blind and outnumbering females by 3 to 1 in the learning disabled and emotionally disturbed categories. Almost two-thirds of youth with disabilities were white; the percentage who were black (24%) was about twice as high as the percentage in the general population.
- Where did youth with disabilities attend school? Youth with disabilities were distributed fairly evenly between urban, suburban, and rural communities, although they were significantly less likely than youth as a whole to have attended school in suburban areas (34% vs. 48%). Their distribution among geographic regions fairly well matched that of the general population.
- What were the characteristics of the households from which they came? Youth with disabilities were more likely than the general population of youth to come from households that were poor and headed by a single parent. For example, 68% of youth with disabilities came from households with annual incomes of less than $25,000, compared with 39% of youth in the general population.
- What were the age, school status, and grade-level distributions of the weighted sample of NLTS youth with disabilities? Youth who had been secondary special education students and ages 13 to 21 in the 1985-86 school year had reached an average age of 17.5 by 1987; one-third were 15 or 16, and almost 3 in 10 were age 19 or older in 1987. Almost two-thirds (65%) were still enrolled in secondary school, 18% had been out of secondary school less than 1 year, and 17% had been out of school between 1 and 2 years. Of those who were in school in the 1986-87 school year, 14% were in grades 7 or 8, 44% in grades 9 or 10, and 32% in grades 11 or 12; 10% were not assigned to a grade level.

These characteristics provide an important backdrop for findings reported in the following chapters.

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3 SECONDARY SCHOOL PROGRAMS

by Mary Wagner

The preceding chapter described the broad diversity that characterizes youth with disabilities. This diversity presents tremendous challenges to the education system, which is required by law to provide an individualized educational program (IEP) suited to each student in special education. What kinds of educational programs were provided to secondary school students with disabilities in response? The purpose of this chapter is to begin to answer that question.

In doing so, the NLTS provides useful information to policymakers, practitioners, researchers, and parents who may be interested in knowing how the requirements of law and regulation relative to students with disabilities are transformed into school programs experienced by individual students. Addressing this question also is an important first step in considering the achievements and transition outcomes of students. In experimental terminology, school programs are among the "treatments" provided to students, with the intent that they contribute to positive student outcomes. We must first understand the nature and variability of those programs if we are to understand how they interact with student characteristics and behaviors and interpret their relationships to student outcomes.

One important distinguishing feature of a student's educational program is the type of school he or she attends. NLTS data[*] indicate that the vast majority of secondary students with disabilities attended regular schools, with 8% attending special schools that served only students with disabilities. The rate of attendance at special schools varied widely by disability category, as depicted in Figure 3-1.[†] For youth in most disability categories, fewer than 1 in 5 students attended a special school, and the rate was less than 2% for students with learning disabilities. However, for youth with sensory impairments[§] or multiple disabilities, enrollment in special schools was considerably more common. More than a third of youth who had visual impairments (35%) or multiple handicaps (41%) attended special schools. Among students who

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[*] Two primary data sources are used in this chapter. Data regarding school policies and practices are taken from the Survey of Secondary Special Education Programs; they refer to policies and programs of the school and are reported for students in school in the 1986-87 school year. Data regarding individual students' school programs (e.g., courses taken) were obtained from school record abstracts and refer to the student's most recent year in secondary school. This was the 1986-87 school year for students still in school at the time of the 1987 interview or those who had left school in the preceding year. For students who had been out of secondary school more than 1 year at the time of the interview, their most recent school year was 1985-86.

[†] This rate is consistent with the rate of special school attendance of 8% for students aged 12 to 21 in the 1985-86 school year reported by the U.S. Department of Education (1989).

[§] The phrase "sensory impairments" refers to youth who were deaf, hard of hearing, or visually impaired, as a single group.

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were deaf, 63% were enrolled in special schools. This percentage is consistent with recent research on a national sample of deaf students (Allen, Rawlings, and Schildroth, 1989), which found that 57% of deaf students attended special schools. Virtually all students who were deaf/blind (94%) also were special school students.

Because the nature of the school attended influences the kinds of educational programs to which students have access, this chapter will discuss separately the school programs of secondary students attending schools that also served nondisabled students and those attending special schools serving only students with disabilities.

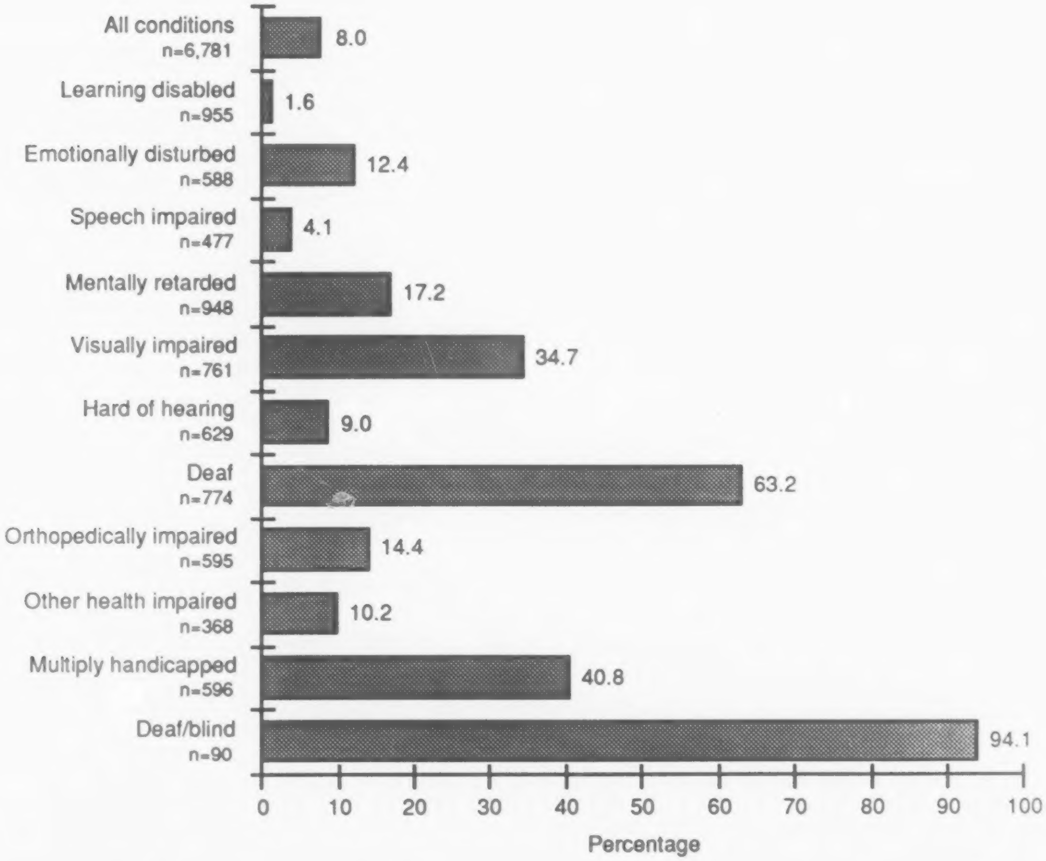

FIGURE 3-1 YOUTH WITH DISABILITIES WHO ATTENDED SPECIAL SCHOOLS

Source: Survey of Secondary Education Programs and/or students' school records from their most recent school year.

Educational Programs of Secondary Students Attending Regular Schools

Although most secondary students with disabilities had in common the fact that they attended schools along with nondisabled students, their educational programs differed greatly, as described in this section. We describe the educational programs of secondary students with disabilities who attended regular schools along six dimensions:

- *School context.* We discuss school context in terms of the grade levels served in the schools and the size and characteristics of the student bodies. Previous research has suggested that such characteristics as school size may influence students' experiences in school, their attitudes toward school, and their school achievements (e.g., Pittman and Haughwout, 1987; Holland and Andre, 1987; Wehlage, Rutter, Smith, Lesko, and Fernandez, 1989).
- *Access to programs.* We describe the extent to which students with disabilities had access in their regular secondary schools to a variety of life skills and vocational programs considered important in preparing students for independence and employment (Halpern, 1979).
- *Course taking.* Because most students spend the majority of their school day in classes, we focus on course taking and describe the participation of students with disabilities in academic and vocational classes and the amount of time involved in each.
- *Support services received by students.* We describe the extent to which students with disabilities were reported to have received a variety of support services from their schools to assist them in their educational programs.
- *Policies regarding mainstreamed students and their regular education teachers.* Schools have varying policies related to expectations for and support provided to students with disabilities who take regular education courses and their regular education teachers.
- *Placement.* Students' instructional experiences are shaped not only by the types of courses they take, but also by the settings in which they are taken. Hence, we consider the extent to which students were integrated into the mainstream of regular education instruction in their most recent year in secondary school, as reflected in the percentage of their instructional time that was spent in regular education classes. Analyses reveal a variety of factors that help explain variation in the extent of involvement in regular education classes.

School Context

To what kinds of regular schools did students bring their educational abilities and disabilities? In Chapter 2, we learned that the students sampled from grades 7 through 12 in 1985-86 were primarily at senior high school grade levels by 1986-87. Consistent with this, in 1986-87, 70% of students with disabilities who were still in secondary school attended high schools (serving grades 9 or 10 through 12 only). About 8% of students attended middle schools (serving grades 6 or 7 through 8 or 9 only), and about 1 in 5 students attended schools serving a different range of grades (e.g., kindergarten through 12th grade). In the schools attended by students with disabilities, on average, almost 3 of 10 students were minorities (29%). Overall, 18% of students with disabilities attended schools that had more than half their students from low-income households.

Few significant differences in these school characteristics are apparent for students in different disability categories (see Appendix D, Table D3-1).[*] One exception is that students with mental retardation or multiple handicaps were more likely to have attended schools that were not high schools or middle schools, but served all grade levels (25% and 27%, compared with 12% of youth who were hard of hearing, for example; p<.001). Students categorized as speech impaired or other health impaired were significantly more likely than students as a whole to have attended schools with higher percentages of students who were minorities (37% and 46%; p<.05). In the case of other health impaired students, this may have resulted from their generally greater concentration in urban areas, as described in Chapter 2.

Schools generally were large, with an average daily attendance of more than 1,000 students, as shown in Table 3-1. On average, senior high schools were significantly larger than either middle schools or schools serving other grade-level combinations. The average daily attendance at senior high schools was 1,151 students, compared with 751 students in middle schools and 607 students in schools serving other grade-level combinations (p<.001). Some research has suggested that such large schools create an environment in which students may find it difficult to establish bonds of affiliation with teachers, groups of students, and the school as an institution unless a conscious effort is made to build a sense of community and identification with the school (Grabe, 1981; Pittman and Haughwout, 1987; Wehlage et al., 1989).

Students categorized as mentally retarded or multiply handicapped were significantly more likely than other students to have attended smaller schools. For example, the average enrollment in schools attended by youth with mental retardation was 881, compared with 1,018 students in schools attended by students with learning disabilities (p<.001). This pattern may in part reflect the relatively large percentage of youth with mental retardation who attended schools in rural areas (46%), as reported in Chapter 2. Because the schools attended by students with mental retardation also were more likely to serve all grade levels, their smaller size implies that there were significantly smaller peer groups for students at a particular grade level in those schools.

The schools attended by students with disabilities as a whole averaged 89 students in secondary special education, or an average of 9% of the student body. The number of students in special education ranged from 77 students in schools attended by youth with mental retardation to 115 students in schools attended by youth who were deaf (p<.001). However, the percentage of all students who were in secondary special education did not vary greatly; for all categories of students, students in special education constituted between 8% and 10% of the student population in the schools.

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[*] Because so few deaf/blind youth attended regular schools, data for youth in that category are not displayed separately in this section, although they are included among youth in all conditions.

Table 3-1

ENROLLMENT IN REGULAR SCHOOLS ATTENDED BY SECONDARY STUDENTS WITH DISABILITIES IN 1986-87

		Primary Disability Category:									
School Characteristics	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired	Other Health Impaired	Multiply Handicapped
Percentage attending schools with:											
500 students or fewer	20.5 (1.3)	20.3 (1.9)	19.4 (2.4)	14.6 (3.4)	24.3 (2.1)	10.0 (2.7)	11.5 (2.4)	11.0 (3.0)	7.1 (1.9)	16.0 (3.1)	25.5 (5.2)
501 to 1,100 students	42.9 (1.5)	42.0 (2.3)	38.8 (3.0)	41.6 (3.4)	49.4 (2.4)	36.8 (4.3)	40.2 (3.7)	27.2 (4.3)	38.2 (3.6)	26.1 (3.7)	46.4 (6.0)
More than 1,100 students	36.5 (1.2)	37.7 (2.3)	41.8 (3.1)	43.8 (3.4)	26.3 (2.1)	53.2 (4.5)	48.4 (3.8)	61.8 (4.7)	54.7 (3.7)	57.9 (4.2)	28.1 (5.4)
Average daily attendance at schools	1,007 (20)	1,018 (31)	1,044 (38)	1,097 (47)	881 (27)	1,324 (78)	1,238 (57)	1,341 (61)	1,372 (57)	1,450 (74)	928 (82)
N	4,866	926	508	438	751	393	557	269	489	314	213
Average number of secondary students classified as:											
Special education (all conditions)	88.7 (2.3)	90.2 (3.5)	97.4 (4.7)	91.7 (4.8)	76.6 (3.7)	99.5 (6.5)	101.6 (5.6)	115.2 (7.8)	103.8 (4.6)	108.6 (8.4)	95.1 (10.6)
Learning disabled	52.2 (1.5)	56.2 (2.4)	51.9 (3.1)	54.9 (3.4)	38.9 (1.7)	54.0 (4.3)	56.0 (4.1)	57.1 (5.2)	57.5 (2.7)	69.7 (6.4)	50.3 (6.7)
Emotionally disturbed	10.2 (.4)	10.4 (.7)	16.6 (1.2)	10.1 (.9)	6.9 (.5)	8.9 (1.1)	9.6 (1.0)	11.9 (1.1)	11.0 (1.0)	10.6 (1.3)	13.1 (2.4)
Speech impaired	1.3 (.2)	1.2 (.2)	1.3 (.3)	3.4 (.8)	1.4 (.3)	1.7 (.6)	1.2 (.3)	.6 (.4)	2.4 (.6)	2.2 (.7)	3.2 (1.3)
Mentally retarded	5.2 (.5)	3.4 (.5)	6.7 (1.2)	4.3 (.7)	9.8 (1.1)	8.6 (1.9)	3.3 (.8)	3.5 (1.0)	6.0 (1.1)	3.7 (.9)	4.4 (1.5)
Visually impaired	.8 (.1)	.9 (.1)	.6 (.1)	.6 (.1)	.6 (.1)	2.8 (.4)	1.4 (.2)	1.4 (.3)	1.1 (.2)	1.2 (.3)	.7 (.2)
Hard of hearing	1.2 (.1)	1.3 (.2)	1.6 (.4)	1.0 (.2)	.7 (.1)	1.9 (.4)	5.8 (.7)	7.8 (1.3)	1.7 (.3)	2.4 (.5)	1.7 (.7)
Deaf	.5 (.1)	.4 (.1)	.6 (.2)	.6 (.2)	.3 (.1)	.6 (.2)	4.2 (.9)	13.1 (2.6)	1.0 (.3)	1.2 (.5)	.7 (.5)
Orthopedically impaired	1.9 (.2)	2.0 (.3)	1.7 (.2)	2.1 (.3)	1.1 (.1)	2.0 (.5)	2.3 (.5)	2.6 (.6)	7.5 (.6)	3.3 (.6)	2.0 (.5)
Other health impaired	.6 (.1)	.6 (.1)	.8 (.2)	.7 (.2)	.4 (.1)	.9 (.3)	1.1 (.3)	1.3 (.3)	1.8 (.3)	1.5 (.3)	.5 (.2)
Multiply handicapped, deaf/blind	1.2 (.2)	1.0 (.3)	1.3 (.3)	1.8 (.3)	1.1 (.2)	1.6 (.6)	2.3 (.4)	1.4 (.5)	1.6 (.4)	1.4 (.5)	5.9 (1.3)
N	4,658	887	488	422	729	376	522	257	467	300	202

Note: Standard errors are in parentheses.
Source: Survey of Secondary Special Education Programs.

Although the percentage of the student population that was in secondary special education was stable among students in different disability categories, the kinds of disabilities represented by those students varied. Table 3-1 indicates a tendency for students with a particular disability to attend schools with a greater number of students with the same disability. For example, students with learning disabilities attended schools in which, on average, there was only 1 student classified as hard of hearing and there was not likely to be a student classified as deaf. However, students who were hard of hearing attended schools that averaged an enrollment of 6 hard of hearing students and 4 deaf students. This clustering of students with the same disability may have resulted from explicit school policies or from choices made by families to have their children attend schools with students who had similar disabilities.

Such clustering might benefit students in that they would have peers within the school with similar disabilities. It also might have financial benefits to schools in that they would have the critical mass of students needed to justify the expense of particular services or resources they might need. Continuing with the example used above, in a school with 10 students classified as hearing impaired, all 10 might be served by a single interpreter if they were in the same classes, or by a small number of interpreters if they were distributed more broadly through regular education courses. If the same 10 students were distributed so that each attended a different school, a larger number of interpreters would be needed for them to benefit from their educational programs.

Access to Programs

A student's educational program is constrained by the program options available in his or her school. Although some schools or families arrange for students to participate in educational programs provided outside of students' home schools, the home school is the usual source of program options from which students can choose. Not all students have equal access to all options because of variations among schools in the resources available for programs and the policy and programmatic emphases that lead them to stress some kinds of programs over others (Fairweather, Stearns, and Wagner, 1989). Of particular relevance to many students with disabilities are programs that provide vocational training and those focused on developing skills needed for independent living after students leave school. Staff in schools attended by NLTS students in their most recent school year responded to a mail survey that asked them about the availability of vocational and life skills programs for students in secondary special education in their schools.[*]

Training in daily living skills has been called "the cornerstone of secondary-level programs" for students with mild educational handicaps (Halpern, 1979). As shown in Table 3-2, schools reported that life skills programs were available to 90% of the secondary students with disabilities who attended regular schools. Only students in the other health impaired category were significantly less likely than others to have access to life skills training (76%; p<.01).

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[*] These data refer to whether particular programs were "routinely provided to secondary special education students" in the schools, as reported by educators in the schools. The data do not imply that students in the NLTS sample actually participated in such programs in their most recent school year.

The life skills training programs available to students may have been part of regular education home economics courses, or may have been training in more basic functional skills specifically for students with disabilities. Perhaps reflecting these different contexts, the nature of the life skills training available to students with disabilities varied in the extent to which it involved community-based experiences. Special educators have encouraged incorporation of real-life experiences in community settings into training for students with disabilities as an effective method of preparing them for independence (Brown et al., 1983). However, Table 3-2 shows that only about 10% of students with disabilities attended schools in which life skills training incorporated community-based experiences at least weekly. About 30% of students with disabilities attended schools in which life skills training included community-based experiences only rarely or not at all. Frequent community-based experiences were significantly more common in schools attended by students who were classified as hard of hearing (20%) or multiply handicapped (28%) than by students who were classified as orthopedically impaired (9%; p<.01), for example.

Job counseling and job readiness training were reported by schools to be available to most students (91% and 86%). However, as we shift attention from these general job preparation programs to programs emphasizing specific skills and work experience, we find them to be less common. Training in specific job skills was available in schools attended by 72% of youth. Job placement and actual work experience programs reportedly were available in schools attended by about 6 of 10 students. Postemployment services were least common, being available in schools attended by 38% of students.

NLTS data reveal variations not only in the kinds of programs reported as available to students, but in the grade level at which they were available. Because students with some kinds of disabilities often require longer exposure to tasks to build mastery, schools are being encouraged to make training or skill development programs available in earlier grades so that students can participate for several years in school (Brown et al., 1983). Providing early access to programs such as vocational training also reflects the reality that many students with disabilities leave school before they have the opportunity to benefit from such programs (see Chapter 5).

Table 3-3 shows that few students had access to life skills or vocational programs until reaching senior high school grade levels. Of students attending schools that served grades 7 or 8, only 37% had access to life skills training at those grade levels. Similarly, career counseling and job readiness training were available in 7th or 8th grade to 24% and 21% of students in schools serving those grade levels. Schools reported that even in 9th and 10th grades, the majority of students in special education did not have access to job placement or postemployment support. Job skills training was available in 11th and 12th grades to about 8 of 10 students in schools serving those grades. However, even in 12th grade, 1 in 5 students did not have access to job skills training, 1 in 4 did not have access to job placement support, and almost half did not have access to either school-

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Table 3-2

PROGRAMS REPORTED TO BE AVAILABLE IN 1986-87 IN REGULAR SCHOOLS ATTENDED BY SECONDARY STUDENTS WITH DISABILITIES

		Primary Disability Category:									
Program Characteristics	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped
Percentage in schools that provided:											
Life skills training	89.7 (1.0)	88.0 (1.6)	88.6 (2.1)	90.2 (2.2)	95.4 (1.1)	88.4 (3.1)	91.6 (2.4)	94.3 (2.4)	89.0 (2.5)	75.9 (4.1)	95.5 (2.7)
N	4,142	816	431	392	644	341	435	224	429	250	172
Community-based experiences as part of life skills training:											
At least weekly	9.7 (1.0)	9.1 (1.4)	8.2 (1.9)	9.5 (2.2)	11.0 (1.8)	13.9 (3.3)	20.0 (3.5)	13.8 (2.4)	8.8 (3.4)	14.6 (5.5)	27.6 (7.8)
Rarely or not at all	29.8 (1.4)	31.9 (2.2)	32.2 (3.0)	32.4 (3.3)	22.4 (2.2)	28.2 (4.2)	26.7 (3.8)	19.0 (3.8)	20.0 (2.8)	41.8 (5.2)	18.4 (4.8)
N	3,640	711	373	351	602	289	392	209	378	188	147
Job/career counseling	91.2 (.9)	90.6 (1.4)	91.4 (1.8)	89.6 (2.2)	93.4 (1.3)	92.0 (2.6)	93.4 (2.2)	91.9 (2.8)	93.6 (2.0)	88.4 (3.0)	78.3 (5.4)
Job readiness training	85.6 (1.2)	84.6 (1.8)	87.3 (2.2)	89.5 (2.2)	86.8 (1.8)	88.2 (3.1)	85.2 (3.1)	95.2 (2.2)	90.9 (2.3)	82.0 (3.7)	83.0 (4.9)
Job skills training	71.5 (1.5)	69.9 (2.3)	76.7 (2.8)	66.2 (3.5)	74.4 (2.3)	78.0 (4.0)	76.1 (3.7)	61.8 (5.0)	80.6 (3.1)	73.7 (4.2)	64.4 (6.2)
Job development/placement services	65.0 (1.0)	64.4 (2.4)	66.6 (3.1)	73.3 (3.2)	62.4 (2.5)	73.7 (4.2)	77.4 (3.6)	82.2 (4.0)	83.7 (2.9)	72.8 (4.2)	60.0 (6.4)
Work exploration/experience	62.8 (1.6)	63.5 (2.4)	59.3 (3.2)	66.4 (3.5)	59.5 (2.5)	65.9 (4.6)	74.9 (3.8)	75.4 (4.5)	79.2 (3.2)	74.8 (4.1)	59.3 (6.5)
Postemployment services	38.4 (1.6)	38.4 (2.4)	40.0 (3.2)	43.2 (3.6)	34.7 (2.5)	47.1 (4.8)	55.2 (4.3)	61.0 (5.1)	60.6 (3.9)	38.8 (4.7)	35.6 (6.4)
N	4,163	536	316	284	414	259	333	185	354	185	123

Note: Standard errors are in parentheses.

Source: Survey of Secondary Special Education Programs.

sponsored work experience programs or postemployment support services. For these students, secondary schools did not actively provide a platform for transition to employment after high school.

Table 3-3 further indicates that students not assigned to a grade level were least likely to have access to any of these programs. For example, about 8 of 10 students in grades 9 through 12 had access to life skills training; only 66% of unassigned students had access to such training (p<.001). Vocational programs were even less accessible to students not assigned to a grade level. These findings are somewhat surprising in light of the assumption that the instructional programs for students not at grade levels, who were generally more severely impaired than students assigned to a grade level, would emphasize life skills and vocational preparation rather than academic pursuits.

Table 3-3

GRADE LEVELS AT WHICH PROGRAMS WERE REPORTED BY SCHOOLS TO BE AVAILABLE IN 1986-87 TO SECONDARY STUDENTS WITH DISABILITIES WHO ATTENDED REGULAR SCHOOLS

	Percent of Special Education Students to Whom Program Was Available:				
Type of Program	Grade 7 or 8	Grade 9 or 10	Grade 11	Grade 12	Unassigned to Grade
Life skills training	37.2 (2.4)	84.1 (1.3)	77.8 (1.6)	77.0 (1.6)	66.1 (2.6)
Job/career counseling	23.6 (2.2)	84.3 (1.3)	81.2 (1.5)	79.2 (1.6)	52.3 (2.8)
Job readiness training	20.7 (2.1)	76.8 (1.6)	81.2 (1.4)	80.8 (1.5)	48.8 (2.8)
Job skills training	NA†	61.7 (2.1)	82.4 (1.4)	83.6 (1.4)	44.2 (2.7)
Job development/placement	NA	40.8 (2.4)	66.0 (1.9)	76.5 (1.6)	36.0 (2.7)
Work experience	NA	50.5 (2.2)	69.8 (1.8)	56.2 (4.1)	39.5 (2.7)
Postemployment support	NA	16.0 (1.9)	37.9 (2.3)	54.7 (2.2)	17.1 (2.1)
N	1,686	2,413	2,944	3,044	1,510

Note: Standard errors are in parentheses.

† Respondents were not asked about the availability of these programs for students in grades 7 or 8.

Source: Survey of Secondary Special Education Programs.

One explanation for this finding may be the nature of the schools attended by more severely impaired students not assigned to a grade level. The vocational programs examined by the NLTS were significantly more likely to be available in large schools in urban or suburban areas. Students in the mentally retarded and multiply handicapped categories, who disproportionately were not assigned to a grade level, were significantly more likely to be attending smaller schools and schools in rural areas. Hence, unassigned students attended the kinds of schools that were least likely to offer vocational programs to train them for employment.

Not surprisingly, the nature of programs made available to students reflected the school's reported primary function in serving the majority of students in secondary special education. School staff were asked to indicate which of the following best expressed their primary function for learning-handicapped students:

- Teaching academic skills so that students fulfill course requirements and can graduate with their nonhandicapped peers.
- Developing individuals with independent living skills so they can make their way in the adult world.
- Training students for competitive employment after they leave school.

Overall, 51% of regular school students with disabilities attended schools that reported having an academic orientation toward learning handicapped students, whereas 36% of students attended schools with a primary focus on developing independent living skills. Only 4% of students attended schools with a vocational focus. There were no significant differences in orientation among schools attended by students in different disability categories.

Table 3-4 demonstrates that the school orientation was reflected in the programs made available to students. Students in schools with an academic orientation were significantly less likely to have access either to life skills training or to any kind of vocational program than were students in schools that emphasized independent living goals. (There were too few students in schools whose primary goal was vocational to include them in this analysis.) For example, 79% of students in schools with an academic orientation reportedly had access to job readiness training, while 96% of students in schools with an independent living orientation had access to such training (p<.001).

This section has demonstrated the variation in program options available to students. In the following section, we examine the extent to which such variation carried over to the kinds of courses taken by students.

Table 3-4

ACCESS TO PROGRAMS IN REGULAR SCHOOLS THAT REPORTED DIFFERENT PRIMARY FUNCTIONS IN SERVING STUDENTS WITH LEARNING HANDICAPS

	School's Main Intent in Serving Learning Handicapped Students:			
	Teaching Academic Skills		Developing Independent Living Skills	
Access to Programs	%	S.E.	%	S.E.
Percentage of students in schools that reported providing to secondary special education students:				
Life skills training	84.1	1.8	96.6	1.0
Job/career counseling	89.0	1.5	95.0	1.2
Job readiness training	79.0	2.0	95.5	2.7
Job skills training	68.5	2.2	73.4	2.4
Job development/placement	58.1	2.4	68.8	2.6
Work experience	59.5	2.4	61.6	2.7
Postemployment support	30.6	2.2	39.1	2.7
N	1,994		1,332	

Source: Survey of Secondary Special Education Programs. Data are for the 1986-87 school year.

Course Taking

Two paths are among the most common for students leaving secondary school. Many students choose employment after high school as a path to financial and personal independence (see Chapter 8). Some students take advantage of opportunities for continued education and training by enrolling in postsecondary schools (see Chapter 9). The academic and vocational courses students take in high school are important preparation for these future paths. Earning the academic credits needed for high school graduation is often a prerequisite for further education or training. Vocational courses can be precursors to postsecondary vocational training or can provide the skills needed to move directly into employment after high school. In this section, we describe the academic and vocational course-taking patterns of students with disabilities who attended regular secondary schools. The NLTS thus far has gathered data on course taking only for students' most recent year in secondary school.

Academic Course Taking

For the vast majority of students with disabilities, academic courses were a main focus of their instructional programs; 95% of students took at least one academic course in their most recent year in secondary school. Academic courses included language arts, science, mathematics, social studies, and foreign language. Although academic courses were part of the school programs of most secondary students with disabilities, they took fewer academic courses throughout their secondary school careers than did nondisabled students, as reported by the 1987 national High School Transcript Study (HSTS), a study of more than 6,000 disabled and 26,000 nondisabled students. The HSTS found that in 4 years in secondary school, students with disabilities earned about 4 fewer credits in academic courses than did nondisabled students (U.S. Department of Education, 1990).

NLTS data reveal few significant differences in academic course taking by disability category, with the percentage of students taking at least one such course ranging from 89% to 98%. The one exception was that only 62% of students with multiple impairments were enrolled in academic courses. There also were no significant differences by grade level, except that students who were not assigned to a grade level were significantly less likely than other students to take academic courses (p<.001), as shown in Table 3-5.

The NLTS does reveal grade-level differences in the amount of time spent in academic courses. For students in different disability categories, academic courses averaged between 13 and 15 hours of instructional time per week. However, students in the upper grades spent significantly less time in academic courses than did those in earlier grades. For example, students in 7th or 8th grade averaged 18 hours per week in academic courses, or about four courses, compared with 12 hours per week for students in grade 11 or 12 (about three courses; p<.001). The downward trend in time spent in academic courses by grade level was offset by the increase in vocational course taking in the upper grades, as discussed in the next section. The extent of academic course taking also was related to the general goals of the school relative to students with disabilities. Students who attended schools that stressed academic goals spent

Table 3-5

ACADEMIC COURSE TAKING IN THEIR MOST RECENT SCHOOL YEAR BY STUDENTS WITH DISABILITIES AT DIFFERENT GRADE LEVELS

Students' Grade Level	Percentage in Any Academic Courses	Mean Hours per Week in Academic Courses	N
7 or 8	95.0 (2.2)	18.4 (.7)	492
9 or 10	98.0 (.8)	15.6 (.3)	1,535
11 or 12	95.4 (1.0)	12.3 (.3)	1,848
Unassigned	67.3 (5.3)	9.6 (1.0)	328

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent year in secondary school.

significantly more time in academic courses (15 hours per week) than did students attending schools whose primary goal involved acquiring life skills for independent living (13.6 hours per week; p<.01).

Vocational Course Taking

Vocational education courses were included in the instructional programs of a majority of students with disabilities; 65% of students took one or more vocational education courses during their most recent year in secondary school. As shown in Figure 3-2, vocational course taking ranged from a low of 49% of students classified as multiply handicapped to more than 70% of students classified as deaf or mentally retarded. This relatively high rate of vocational course taking by students classified as deaf is consistent with findings for a national sample of such students aged 16 to 22 in the 1986-87 school year (Allen, Rawlings, and Schildroth, 1989), which indicated that 67% of students took vocational courses in that year.

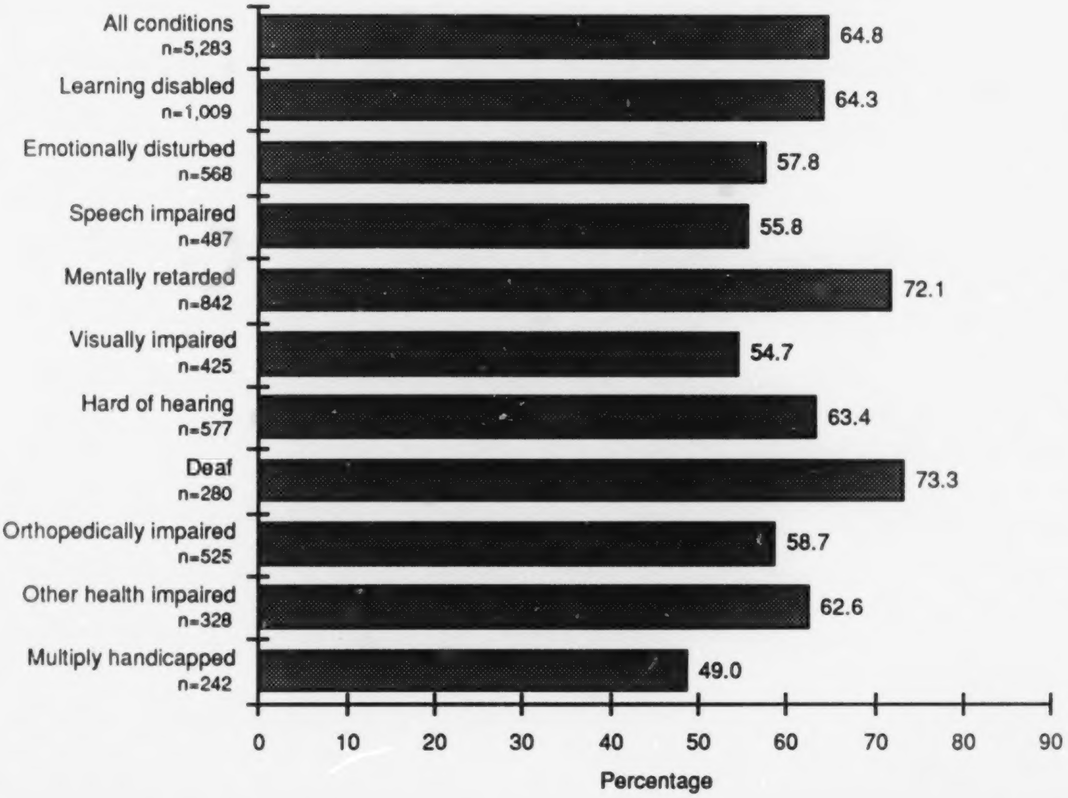

FIGURE 3-2 STUDENTS WITH DISABILITIES ATTENDING REGULAR SECONDARY SCHOOLS WHO TOOK VOCATIONAL EDUCATION IN THEIR MOST RECENT SCHOOL YEAR

Source: Survey of Secondary Education Programs and/or students' school records from their most recent school year.

These 1-year rates of participation underestimate the total exposure to vocational education that students with disabilities had over their full high school careers. The High School Transcript Study has shown that virtually all students with disabilities in regular public high schools (96%) earned some vocational credits in high school (Hayward and Wirt, 1989). The HSTS found that students with disabilities earned more credits in vocational courses in high school than did nondisabled students (5 credits vs. 4 credits).

NLTS data show that students taking vocational courses averaged 4 hours of instructional time per week in those courses in their most recent school year, with the amount of time ranging from 3 hours for students with speech, health, or visual impairments, for example, to 5 hours for students who were classified as deaf or mentally retarded (p<.01).

Not all of the vocational education courses taken by students focused on training in specific job skills. Vocational education encompasses a wide range of content areas, including home economics and prevocational or job-related skills, in addition to training in specific labor market areas. This latter occupationally oriented vocational education was provided in the most recent school year to 86% of students who took vocational courses (Table 3-6; see Appendix C for details on the definition and data sources for variables related to occupational vocational

Table 3-6

VARIATION BY DISABILITY CATEGORY IN THE PERCENTAGE OF VOCATIONAL STUDENTS WHOSE VOCATIONAL TRAINING WAS OCCUPATIONALLY ORIENTED

	Students Who Took Occupationally Oriented Courses Among Those Taking Any Vocational Courses		
Disability Category	%	S.E.	N
All conditions	79.3	1.5	3,244
Learning disabled	85.1	2.0	667
Emotionally disturbed	79.2	3.2	331
Speech impaired	75.8	3.8	268
Mentally retarded	66.8	2.6	596
Visually impaired	75.9	5.5	201
Hard of hearing	82.4	3.7	349
Deaf	81.4	4.6	201
Orthopedically impaired	62.1	4.7	201
Other health impaired	75.7	4.5	299
Multiply handicapped	46.8	7.1	127

Source: Students' school records and/or parent reports.

education). Occupational training averaged 3 hours per week of instructional time. Conversely, about 14% of students who took at least one vocational course studied only prevocational or home economics courses, rather than receiving occupationally specific training. Students classified as multiply handicapped not only were least likely to have taken vocational courses, but once enrolled in such courses, their courses were least likely to have involved occupationally oriented training (47%; p<.001).

Much of students' participation in vocational education occurred in the upper grades, as shown in Table 3-7. The NLTS found that, although only somewhat more than one-third of students in grades 7 or 8 took vocational courses (39%), 67% of 9th- and 10th-graders did so. Among 11th- and 12th- graders, 82% took one or more vocational courses in their most recent year in school, a significantly higher rate of vocational course taking than either of the other two grade-level groups. Students in upper grades who took vocational courses also spent more time in them (e.g., 10 hours per week vs. 7 hours for 9th- or 10th-graders; p<.001). Once students were enrolled in vocational education, however, they were about equally likely to have their vocational training be occupationally oriented, regardless of their grade level. Again, students in upper grades who took occupationally oriented courses spent more time in them than students in earlier grades (8 hours per week vs. 6 hours for 9th- and 10th-graders; p<.05).

Table 3-7

VARIATION BY GRADE LEVEL IN THE VOCATIONAL EDUCATION EXPERIENCES OF STUDENTS WITH DISABILITIES WHO ATTENDED REGULAR SCHOOLS

Course Taking	Grade 7 or 8	Grade 9 or 10	Grade 11 or 12	Unassigned to Grade
Percentage who took any vocational education in the most recent school year	38.8	67.0	81.8	52.4
	(4.6)	(2.4)	(1.8)	(5.4)
N	534	1,627	1,944	352
Average hours per week spent in vocational courses by students taking them	5.1	6.6	10.2	9.7
	(.4)	(.3)	(.3)	(1.0)
N	212	937	1,429	168
Percentage of vocational students who took occupationally oriented courses	89.2	88.6	87.5	73.4
	(4.5)	(2.0)	(1.8)	(7.5)
N	212	937	1,429	168
Average hours per week spent in occupationally oriented courses by students who took them	4.1	5.8	8.2	8.2
	(.4)	(.3)	(.3)	(1.0)
N	186	792	1,218	102

Source: Students' school records for their most recent school year.

Students not assigned to a grade level were less likely to have taken vocational education in their most recent school year than were other students. Compared with students in grades 9 or 10, for example, unassigned students were significantly less likely to be enrolled in vocational education at all* (52% vs. 67%; p<.05), and less likely to be in training that was occupationally oriented (73% vs. 89%; p<.001). However, once enrolled, they spent as much time in such courses as upper grade level students. There was no difference in occupational training rates for students attending schools with different primary goals for students with learning handicaps.

Table 3-8 indicates the content area of vocational training received by students in their most recent school year. Construction trades and office occupations were the most common occupational areas studied by vocational students with disabilities, with about 1 in 4 students being enrolled in each of these areas. Prevocational skills and machine trades courses were enrolled in by 17% and 15% of vocational students, respectively. Other occupational areas each were studied by about 10% or fewer students.

There were some significant differences in substantive area of courses by disability category. For example, students with visual impairments were significantly less likely than most other categories of students to receive training in construction trades (8% vs. 27%; p<.001). Students in the orthopedically impaired, mentally retarded, and multiply handicapped categories were more likely to receive training in prevocational skills (p<.001), and students in the latter two categories were less likely to be trained for office occupations (p<.001). The more severely impaired students in ungraded programs also were significantly more likely to have received training in custodial work (15%) or personal services (11%) than were students as a whole.

The general distribution of occupational courses somewhat belies the popular notion that students with disabilities are channeled into courses that train them for low-paying service occupations, such as food or custodial services. NLTS data are consistent with findings from the High School Transcript Study that a minority of students with disabilities are trained in these areas. However, the HSTS reports that vocational students with disabilities do concentrate in service occupations more than their nonhandicapped peers (Hayward and Wirt, 1989).

The gender and ethnic backgrounds of students are related to their participation in vocational courses, as shown in Table 3-9. Although males and females were about equally likely to have enrolled in some kind of vocational course in their most recent school year, males were significantly more likely than females to have their vocational courses be occupationally oriented (85% vs. 68%; p<.001).

Gender differences also were apparent in the content area of vocational courses. For example, the NLTS found that only 2% of male vocational students with disabilities took courses in personal service occupations; 13% of female students did so (p<.001). Similarly, female

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* Allen, Rawlings, and Schildroth (1989) report consistent findings for deaf students, in that more severely impaired deaf students (those with two or more additional disabilities) were less likely than other deaf students to be receiving vocational training.

Table 3-8

TYPE OF TRAINING RECEIVED BY SECONDARY STUDENTS WITH DISABILITIES WHO TOOK VOCATIONAL COURSES IN REGULAR SCHOOLS

		Primary Disability Category:									
Type of Vocational Training	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped
Percentage of students taking vocational courses who studied:											
Construction trades	26.6 (1.7)	29.0 (2.6)	26.4 (3.6)	24.8 (4.1)	21.8 (2.4)	8.2 (3.9)	16.4 (4.6)	21.0 (4.1)	13.5 (3.8)	23.4 (4.9)	10.7 (4.9)
Office occupations (typing/computer programming)	25.7 (1.7)	29.1 (2.6)	26.5 (3.6)	36.5 (4.6)	12.4 (1.9)	49.3 (7.0)	42.7 (6.1)	44.7 (5.0)	44.0 (5.5)	39.0 (5.6)	16.3 (5.9)
Prevocational skills/job readiness	17.3 (1.5)	12.8 (2.0)	20.3 (3.3)	28.5 (2.7)	11.8 (3.1)	11.6 (4.5)	17.6 (4.7)	13.4 (3.4)	31.1 (5.1)	17.2 (4.3)	30.5 (7.4)
Machine shop/auto repair	15.2 (1.4)	17.6 (2.2)	16.4 (3.0)	13.1 (3.2)	10.2 (1.8)	5.0 (3.1)	8.4 (3.4)	9.1 (2.9)	3.9 (2.1)	7.1 (3.0)	8.1 (4.4)
Agriculture, horticulture	11.5 (1.2)	12.6 (1.9)	8.6 (2.3)	7.1 (2.5)	11.1 (1.8)	9.3 (4.1)	2.3 (1.9)	8.2 (2.8)	7.6 (2.9)	7.1 (2.9)	4.2 (3.2)
Food service	8.0 (1.1)	6.4 (1.4)	6.0 (1.9)	4.7 (2.0)	13.8 (2.0)	5.5 (3.2)	4.7 (2.6)	7.2 (2.6)	8.2 (3.0)	8.0 (3.1)	7.5 (4.2)
Commercial arts (design, photography, graphics)	7.4 (1.0)	8.7 (1.6)	8.0 (2.2)	8.2 (2.6)	3.0 (1.0)	7.2 (3.6)	14.9 (4.4)	14.0 (3.5)	2.6 (1.8)	14.4 (4.0)	.8 (1.4)
Manufacturing/industrial arts	6.5 (1.0)	5.9 (1.4)	7.0 (2.1)	8.1 (2.6)	7.9 (1.6)	7.1 (3.6)	5.0 (2.7)	3.8 (1.9)	5.8 (2.6)	7.1 (3.0)	4.8 (3.4)
Personal services (cosmetology, child care)	4.9 (.8)	4.6 (1.2)	5.4 (1.8)	3.5 (1.8)	5.7 (1.4)	6.8 (3.6)	3.1 (2.1)	7.9 (2.7)	6.6 (2.7)	4.6 (2.4)	4.3 (3.3)
Custodial services	3.0 (.7)	2.1 (.8)	1.6 (1.0)	.2 (.4)	6.4 (1.4)	1.8 (1.9)	0.0 (.0)	.8 (.9)	5.1 (2.4)	1.6 (1.5)	2.0 (2.2)
Other	10.1 (1.2)	10.5 (1.8)	12.4 (2.7)	9.0 (2.8)	5.5 (1.3)	11.8 (4.5)	13.7 (4.2)	9.1 (2.9)	4.9 (2.4)	7.6 (3.0)	7.7 (4.3)
N	2,829	617	303	226	506	168	184	313	241	168	

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent school year.

Table 3-9

GENDER AND ETHNIC DIFFERENCES IN VOCATIONAL COURSE TAKING AMONG SECONDARY STUDENTS WITH DISABILITIES IN REGULAR SCHOOLS

	Gender:		Ethnic Background:		
Vocational Course Taking	Male	Female	Black	White	Hispanic
Percentage of students enrolled in any vocational education in their most recent secondary school year	65.3	63.9	60.2	65.5	57.0
	(1.7)	(2.5)	(3.6)	(1.9)	(6.4)
N	3,277	2,004	934	2,839	454
Percentage of vocational students whose vocational classes were occupationally oriented in their most recent secondary school year	84.8	68.1	73.8	83.2	77.4
	(1.7)	(3.0)	(3.7)	(2.0)	(6.5)
N	2,053	1,243	922	2,818	449
Percentage of vocational students studying the following occupational areas in their most recent secondary school year:					
Agriculture	12.9	8.2	6.3	14.0	6.0
	(1.6)	(2.0)	(2.5)	(1.8)	(4.2)
Manufacturing/industrial arts	8.0	2.6	6.7	6.8	2.0
	(1.3)	(1.2)	(2.6)	(1.3)	(2.5)
Machine shop/engine repair	20.2	2.6	11.8	15.6	17.1
	(1.9)	(1.2)	(3.3)	(1.9)	(6.7)
Construction trades	34.9	5.0	22.0	27.6	20.8
	(2.2)	(1.6)	(4.3)	(2.4)	(7.2)
Commercial arts	8.8	3.9	4.8	8.5	11.1
	(1.3)	(1.4)	(2.2)	(1.5)	(5.6)
Office occupations	19.4	42.5	23.7	26.1	41.1
	(1.8)	(3.6)	(4.4)	(2.3)	(8.8)
Personal services	1.9	12.8	5.9	3.6	10.5
	(.6)	(2.4)	(2.4)	(1.0)	(5.5)
Food service	5.9	13.6	8.1	8.7	3.4
	(1.1)	(2.5)	(2.8)	(1.5)	(3.2)
Custodial services	3.3	2.4	1.8	3.2	.1
	(.6)	(.9)	(1.4)	(.9)	(.5)
N	1,839	984	450	1,549	223

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent school year.

vocational students with disabilities were more than twice as likely as males to take courses in food service (14% vs. 6%; p<.01) or in office occupations (42% vs. 19%; p<.001). Conversely, male vocational students with disabilities were significantly more likely than females to be enrolled in courses in machine shop (20% vs. 3%; p<.001) or construction trades (35% vs. 5%; p<.001). These gender differences were apparent regardless of disability category. For example, in all categories, young men were substantially more likely to have taken machine shop or construction trades than were young women. In all categories, young women were more likely to have had training in food service occupations, and in all categories except visually impaired, they were more likely than men to have had training in office occupations, although sample sizes limit the statistical significance of these comparisons. Similar gender differences were found in the HSTS, both for students with disabilities and for the general student population (Tuma et al., 1988). Despite the specific intent of the Carl D. Perkins Act of 1984 to support sex equity in vocational education, recent research has concluded that "over the past two decades, sex segregation in vocational enrollments has changed little. Most traditional patterns of enrollment persist" (Wirt et al., 1989).

Regarding differences between students based on ethnic background, although students from all ethnic groups were about equally likely to have enrolled in vocational education in general, white students were significantly more likely to have their vocational courses be occupationally oriented than were black students (83% vs. 74%; p<.01); Hispanic students did not differ significantly from other ethnic groups. No consistent pattern of differences in occupational areas were apparent between ethnic groups. However, white vocational students were significantly more likely than black students to have studied agriculture.

From this description of course taking, we find a concentration on academic courses among students in lower grades, with an increased blending of academic and vocational training among students in the upper grades. Enrollment in vocational training, particularly training in specific labor market areas, was significantly greater among male students and those without multiple impairments.

Support Services Provided Students by Their Schools

For some students with disabilities, their special education classes alone may provide sufficient support for them to succeed academically in secondary school. For others, additional support services are provided by schools to help students benefit from their educational programs. The NLTS obtained data regarding a variety of support services provided by schools, including speech/language therapy, personal counseling, occupational therapy/life skills training, help from a tutor/reader/interpreter, and physical therapy/mobility training. Data were collected from students' school records and/or parent reports of services received by their children from their schools (see Appendix C for a discussion of the construction and limitations of these variables). Data regarding services received refer to the preceding year; services students received earlier are not included in this analysis. Students who were declassified from special education, and therefore not eligible for special education support services, were not included in these analyses.

Parents or school records indicated that support services were provided by the schools to about half of secondary students with disabilities (53%; Table 3-10). Among secondary students with disabilities who attended regular schools, 16% received help from a tutor, reader, or interpreter from their school. Speech therapy was provided to 18% of students in special education overall, and to 54% of students classified as speech impaired. Personal counseling was received by 16% of students in special education overall and by 36% of students classified as having emotional disturbances or behavior disorders. NLTS data reveal that the school was the primary provider of such services; if students were not receiving these services from their schools, they were not likely to be receiving the services at all, according to parents.

School Policies and Practices Regarding Instructional Placement

The educational experiences of students in special education are shaped not only by the nature of their courses but by the environment in which they are taken. A key element of the instructional environment is the nature of the students in it. Whether students with disabilities take courses in regular education can affect their social relationships and behaviors; in regular education classes, they have an opportunity to form friendships with and model the behavior of nondisabled students. Equity concerns also encourage integration so that all students who can benefit from regular education instruction have the opportunity to do so. Hence, the maximum appropriate integration of special education students with the general student population is the specific intent of the "least restrictive environment" (LRE) provision of P.L. 94-142, which seeks to ensure that:

> to the maximum extent appropriate, handicapped children...are educated with children who are not handicapped, and that special classes, separate schooling, or other removal of handicapped children from the regular education environment occurs only when the nature or severity of the handicap is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.

Individualization of instructional programs also is central to P.L. 94-142; such individualization is seen as necessary to compensate for or circumvent the educational obstacles presented by disabilities. Special education classes often are smaller and are more likely to have instructional aides present in addition to the teacher, "clearly offering the opportunity for more individualized and small group instruction" (Singer et al., 1986). Hence, a policy and procedural tension may exist in attempting to assure students the benefits of both integration and individualization. What kind of balance is struck between regular education and special education placements at the secondary level for students with different kinds of disabilities?

Substantial integration of secondary students with disabilities into the regular education system exists. Although we think of youth with disabilities as special education students, 86%

Table 3-10

SERVICES RECEIVED FROM THEIR SCHOOLS IN 1986-87 BY SECONDARY STUDENTS WITH DISABILITIES WHO ATTENDED REGULAR SCHOOLS

Services	Total	Primary Disability Category: Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped
Percentage of students receiving from or through their regular secondary school in the 1986-87 school year:											
Speech or language therapy	18.0	12.0	6.5	54.2	28.7	7.4	61.1	73.7	22.6	17.0	72.6
	(1.3)	(1.7)	(1.7)	(3.9)	(2.3)	(2.5)	(3.9)	(4.9)	(3.4)	(3.4)	(5.4)
Personal counseling or therapy	16.5	14.4	35.8	6.3	15.2	10.5	13.1	22.5	16.0	19.8	23.4
	(1.3)	(1.8)	(3.2)	(1.9)	(1.8)	(2.9)	(2.7)	(4.6)	(3.0)	(3.6)	(5.1)
Occupational therapy or life skills training	25.9	21.0	18.3	19.4	41.2	26.4	22.9	36.8	41.7	30.9	59.3
	(1.5)	(2.1)	(2.6)	(3.1)	(2.5)	(4.1)	(3.4)	(5.3)	(4.0)	(4.1)	(5.9)
Help from tutor/reader/interpreter	16.3	17.8	13.0	9.0	11.9	30.2	41.1	69.6	20.8	20.4	12.6
	(1.3)	(2.0)	(2.3)	(2.2)	(1.6)	(4.3)	(3.9)	(5.0)	(3.3)	(3.6)	(4.0)
Physical therapy/mobility training	4.6	2.7	1.9	.9	8.1	9.9	2.9	2.4	43.8	9.9	34.4
	(.7)	(.8)	(.9)	(.7)	(1.4)	(2.8)	(1.3)	(1.7)	(4.0)	(2.7)	(5.7)
Percentage of students receiving none of these services from or through their regular secondary school in the 1986-87 school year	46.9	52.9	46.2	35.9	36.4	45.5	22.9	9.7	30.8	40.9	11.8
	(1.7)	(2.6)	(3.4)	(3.7)	(2.4)	(4.6)	(3.3)	(3.2)	(3.8)	(4.4)	(3.9)
Average number of these services received from/through secondary schools in l986-87 school year	.8	.7	.8	.9	1.0	.8	1.4	2.0	1.4	1.0	2.0
	(.03)	(.04)	(.06)	(.06)	(.05)	(.09)	(.09)	(.12)	(.10)	(.09)	(.15)
N	4,157	719	414	344	676	357	498	233	411	275	215

Note: Standard errors are in parentheses.

Source: Parent reports and students' school records for their most recent school year.

of secondary students with disabilities spent at least some of their instructional time in regular education settings. To those classes, they brought the educational challenges of their disabilities; many of them also brought the educational disadvantages of poverty described in Chapter 2. What accommodations for these students were reflected in school policies and practices toward mainstreamed special education students? What support was available to regular education teachers who taught mainstreamed students?

One accommodation schools can make in recognition of the educational challenges faced by students with disabilities involves grading policies. The NLTS finds that 40% of students attended schools which reported that mainstreamed students were held to a different grading standard in regular education classes than were nondisabled students in those classes. Conversely, 60% attended schools in which no such accommodation was made; mainstreamed and nondisabled students were held to the same grading standards (Table 3-11).

Table 3-11

SCHOOLS' POLICIES AND PRACTICES TOWARD MAINSTREAMING

	Students in Schools That Have Policy/Practice		
Policies/Practices	%	S.E.	N
School held mainstreamed students in *regular* education classes to same grading standard as other students	60.0	1.6	4,105
Mainstreamed students in regular education classes were expected to keep up with the class without help	35.2	1.6	4,149
Regular education teachers with mainstreamed students routinely received:			
Consultation from special education staff	96.9	.6	4,148
Special materials to use with mainstreamed students	52.6	1.7	4,148
In-service training in teaching students with disabilities	43.6	1.7	4,148
Human aides in the classroom	28.3	1.5	4,148
Smaller class size/student load	10.6	1.0	4,148

Source: Survey of Secondary Special Education Programs.

In exploring how students might have been aided to meet the same academic standards as nondisabled students, we find that 35% of students with disabilities attended schools which reported that mainstreamed students were expected to keep up in regular education classes without help. Conversely, almost two-thirds (65%) attended schools that did not have this expectation. These policies do not appear to have been reflected, however, in the extent to which support services were provided to students; there were no significant differences in the extent to which students were reported to have received support services based on the policies toward mainstreamed students reported by their schools.

There were few differences in the extent to which students in different disability categories were exposed to these policies, except that students classified as mentally retarded were more likely to be in schools that accommodated students by applying different grading standards (50% vs. 40% for students with disabilities as a whole; p<.05) and that acknowledged some support was needed for mainstreamed students to succeed in regular education classes (72% vs. 65%; p<.01). Students classified as emotionally disturbed were somewhat more likely to be in schools without either of these policies of accommodation; more than two-thirds of students with emotional disturbances were in schools that held mainstreamed and nondisabled students to the same grading standard, and 41% were in schools that expected mainstreamed students to keep up in regular education classes without help.

One might argue that such school policies would only indirectly affect students when compared to the more direct impacts of the teacher-student interactions that go on in classrooms. Did teacher instruction in regular education classes accommodate mainstreamed students? Although the NLTS did not collect data on classroom instruction directly, we have hypothesized that a teacher's ability to adapt instructional approaches to the learning styles of students with disabilities would improve if he or she were provided with support in managing classroom tasks. The NLTS collected data regarding the extent to which regular education teachers with mainstreamed special education students were reported by schools to be routinely provided in-service training on the needs of those students, consultation services from special education professionals, special materials to use with mainstreamed students, reduced class size, and/or classroom aides.

Table 3-11 indicates that virtually all students with disabilities (97%) attended schools in which special education professionals routinely provided consultation services to regular education teachers with mainstreamed students. Other types of support were much less common. Only about half of students with disabilities (53%) attended schools that routinely provided special materials to regular education teachers to use with mainstreamed students. In-service training on the needs of special education students was routinely provided in schools attended by 44% of students with disabilities. Classroom aides and reduced class size were not often made available (28% and 11%).

There were few distinctions between students in different disability categories as to whether their schools reported having the policies just described. One exception is that students classified as deaf and orthopedically impaired were significantly more likely than others to attend schools reporting policies of providing special materials to regular education teachers to use with mainstreamed students (70% and 75% vs. 53%; p<.01). Deaf students also were more likely than others to be in schools that routinely provided human aides to regular education teachers with mainstreamed students (72% vs. 28%; p<.001), perhaps as interpreters for students with hearing impairments. This explanation is particularly likely in light of the clustering of students with similar disabilities in the same schools that was documented earlier in this chapter.

Students' Classroom Placements

Beyond these issues of policies and support for mainstreaming, what were the actual educational placements of secondary students with disabilities who attended regular schools?

About 5% of students with disabilities took all of their courses in regular education placements because they were found no longer to qualify for special education services and were "declassified" in their most recent school year.[*] As shown in Figure 3-3, the percentage of secondary students declassified from special education ranged from 19% of students in the speech impaired category to fewer than 1% of students who were classified as deaf, or multiply handicapped. NLTS findings are consistent with those of Walker et al. (1988) in revealing that students in the speech impaired category were more likely than other students to have been declassified. The NLTS found no significant differences in declassification rates by grade level or students' gender, ethnicity, or household income.

The vast majority of students remained classified as eligible for special education services and experienced a wide range of levels and types of involvement with regular education. As shown in Table 3-12, the majority of students with disabilities spent the majority of their class time in regular education settings; 62% of students were mainstreamed for more than half of their instructional time.[†] Students as a whole averaged 56% of their instructional time in regular education classes. Students classified as speech impaired averaged significantly greater time in regular education classes than students as a whole, with 81% spending a majority of time in regular education. Their average of 77% of time in regular education was equivalent to more than five courses of a typical seven-course program. Students classified as multiply handicapped spent the least amount of instructional time in regular education classes, averaging the equivalent of about one course in regular education classes (19% of their time).

Despite the fairly broad exposure to regular education instruction by students with disabilities, 13% of secondary students in regular schools had no instructional integration with their nondisabled peers. This percentage ranged from a low of 7% of students categorized as hard of hearing to 60% of students classified as multiply handicapped.

In addition to this wide variation between disability categories, Table 3-12 also shows considerable variability within category. For example, 8% of students classified as learning

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[*] This rate is similar to the 1-year declassification rate of 4% for elementary and secondary students together reported by the Council of Great City Schools for its member districts (CGCS, 1986), and is lower than the 17% of elementary students found by Walker et al. (1988) to have been declassified in a single year in five metropolitan school districts.

[†] This rate is consistent with findings by Singer et al. (1986) for elementary students in five urban school districts; 58% of those students spent the majority of their day in regular education classes.

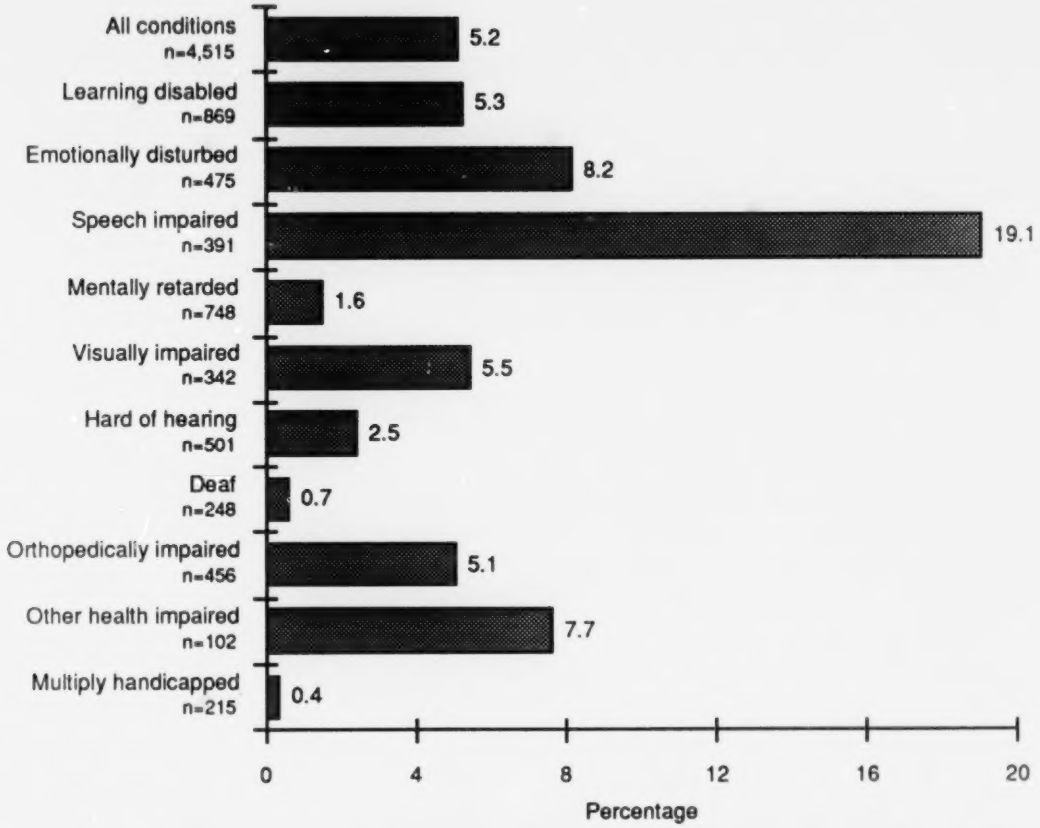

FIGURE 3-3 SECONDARY STUDENTS ATTENDING REGULAR SCHOOLS WHO WERE DECLASSIFIED FROM SPECIAL EDUCATION IN THEIR MOST RECENT SCHOOL YEAR

Source: Students' school records from their most recent school year.

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disabled took no regular education courses in their most recent school year, whereas 18% of students in the same category took all their courses in regular education. Similarly, 15% of students classified as deaf were not mainstreamed at all, and almost the same proportion (12%) were fully mainstreamed.

The extent to which students spent time in regular education classes was related in part to the courses they took. For example, students taking nonacademic courses were more likely to be in regular education classes for them than were students in either vocational or academic courses, as shown in Table 3-13. Overall, 83% of students enrolled in nonacademic courses were mainstreamed for those courses. In contrast, 78% of students in vocational courses took at least one of those courses in regular education, and 62% of students enrolled in academic courses were in regular education for at least one of them ($p<.001$). These rates for a single year in secondary school are similar to rates reported by the High School Transcript Study for

Table 3-12

PERCENTAGE OF INSTRUCTIONAL TIME SPENT IN REGULAR EDUCATION CLASSES BY STUDENTS WITH DISABILITIES WHO ATTENDED REGULAR SECONDARY SCHOOLS

Disability Category	Mean Percentage of Time	Percentage of Students Whose Proportion of Class Time in Regular Education Was:						
		0	1-24%	25-49%	50-74%	75-99%	100%	N
All conditions	56.2 (1.1)	12.8 (1.1)	9.9 (1.0)	15.3 (1.2)	24.2 (1.4)	21.0 (1.3)	16.8 (1.2)	4,227
Learning disabled	63.6 (1.6)	7.8 (1.4)	7.2 (1.3)	12.0 (1.6)	26.9 (2.2)	27.6 (2.2)	18.6 (2.0)	824
Emotionally disturbed	57.6 (2.3)	13.0 (2.2)	10.4 (2.0)	14.7 (2.4)	21.0 (2.7)	20.7 (2.7)	20.0 (2.6)	447
Speech impaired	77.2 (2.0)	8.2 (2.1)	3.2 (1.3)	7.1 (1.9)	13.3 (2.6)	13.8 (2.6)	54.3 (3.8)	366
Mentally retarded	32.7 (1.4)	24.9 (2.1)	18.0 (1.9)	26.4 (2.2)	22.4 (2.1)	5.4 (1.1)	1.0 (.8)	711
Visually impaired	76.8 (3.4)	10.0 (3.1)	3.0 (1.7)	5.7 (2.4)	9.2 (3.0)	23.9 (4.4)	48.3 (5.1)	307
Hard of hearing	61.9 (2.7)	6.6 (2.1)	10.8 (2.6)	15.8 (3.0)	22.0 (3.4)	19.9 (3.3)	24.8 (3.6)	468
Deaf	48.8 (3.5)	14.7 (3.8)	12.3 (3.5)	24.0 (4.6)	23.9 (4.6)	12.6 (3.5)	12.5 (3.5)	237
Orthopedically impaired	47.6 (3.1)	22.0 (3.4)	14.7 (2.8)	15.4 (2.9)	14.1 (2.8)	13.2 (2.7)	20.8 (3.3)	418
Other health impaired	64.7 (3.7)	16.0 (3.5)	10.3 (2.9)	6.8 (2.4)	6.8 (2.4)	21.3 (3.9)	38.7 (4.6)	253
Multiply handicapped	18.7 (3.4)	59.7 (5.9)	9.1 (3.4)	15.9 (4.4)	7.1 (3.1)	3.4 (2.2)	4.8 (2.6)	191

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent year in secondary school.

Table 3-13

STUDENTS WITH DISABILITIES IN REGULAR EDUCATION SETTINGS FOR ACADEMIC, VOCATIONAL, AND OTHER NONACADEMIC COURSES IN THEIR MOST RECENT YEAR IN SECONDARY SCHOOL

	Of Students Who Took a Type of Course, Those Who Took At Least One of Them In Regular Education Classes					
	Academic Courses[†]		Vocational Courses[§]		Nonacademic Courses[#]	
Disability Category	%	N	%	N	%	N
All conditions	61.7 (1.7)	3,956	77.7 (1.5)	3,187	82.6 (1.4)	3,573
Learning disabled	70.1 (2.3)	803	84.8 (2.0)	657	87.1 (1.9)	690
Emotionally disturbed	70.1 (3.1)	426	76.9 (3.3)	326	82.7 (3.2)	381
Speech impaired	82.7 (2.9)	356	85.1 (3.2)	262	91.7 (2.9)	316
Mentally retarded	28.5 (2.4)	620	60.8 (2.6)	586	72.5 (2.4)	591
Visually impaired	87.2 (3.5)	295	86.2 (4.4)	196	81.2 (3.6)	275
Hard of hearing	66.8 (3.9)	463	80.4 (3.8)	345	87.2 (3.5)	397
Deaf	58.7 (5.3)	234	69.3 (5.4)	198	78.1 (5.1)	211
Orthopedically impaired	62.7 (4.0)	391	68.4 (4.5)	297	53.6 (4.3)	345
Other health impaired	75.5 (4.2)	234	73.7 (4.6)	195	79.0 (4.2)	209
Multiply handicapped	32.9 (6.7)	132	37.5 (6.9)	121	27.7 (6.7)	153

Note: Standard errors are in parentheses.

[†] Academic courses include English/language arts, mathematics, science, social science, and foreign language.

[§] Vocational courses include home economics, courses in prevocational skills, and occupationally specific courses.

[#] Nonacademics include physical education, music, art, drivers' education, etc.

Source: Students' school records for their most recent school year.

students with disabilities over their full high school careers. HSTS data reveal that 59% of academic credits were earned by students with disabilities in regular education classes and that 82% of vocational credits were earned in such classes (U.S. Department of Education, 1990).

The high participation in regular education among students taking vocational courses is not surprising, given that only about half of students (52%) attended schools that reported offering vocational classes specifically for students in special education, leaving regular education courses as the only option for vocational courses at students' home schools.*

This discussion demonstrates that the likelihood that a student with disabilities spent part of his or her instructional time in regular education classes was influenced in part by the courses he or she took. What other factors relate to the extent to which students were mainstreamed into regular education classes? This question is addressed in the following section.

Factors Related to the Amount of Instructional Time Students Spent in Regular Education Classes

Three categories of factors are thought to influence the extent to which students with disabilities took regular education courses: students' disability characteristics; their demographics; and the policies, resources, and programs of their schools. Each category of factors and their hypothesized relationship to time spent in regular education are explored below. Because many of the factors are related to each other, we follow this presentation with results of analyses of all factors simultaneously; it demonstrates the independent relationship of each factor to the percentage of time students spent in regular education classes, statistically holding constant other factors in the analysis.

Disability Characteristics

A student's educational placement is intended by law to reflect the educational needs generated by his or her disability, as determined through the IEP process. Therefore, we expect that variation in the percentage of time students spent in mainstreamed settings would be explained largely by disability-related factors. Some of the nature of the disability is captured in the category to which a student is assigned. We already have seen the substantial variation by disability category in the percentage of time for which students were integrated into regular education placements (Table 3-12). Students' functional abilities, which vary widely both across and within disability categories, also are expected to relate to the percentage of time students were integrated, in that students with lower self-care skills, functional mental skills, and IQ scores are expected to have spent less time in regular education classes than higher-functioning students.

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* Some students did have access to vocational courses specifically for special education students outside of their home school. The High School Transcript Study (Hayward and Wirt, 1989) reports that 38% of the vocational education taken by students with disabilities in regular public high schools was taken outside of the home school (e.g., at area vocational centers, on the job, or at other educational institutions).

Table 3-14 demonstrates such relationships. For example, students who were rated by parents as having high self-care abilities spent a significantly greater percentage of their time in regular education classes than did students rated as having medium or low self-care abilities (58% vs. 28% and 17%; p<.001). Similarly, students with high functional mental skills spent significantly more time in regular education classes than students with lower abilities (65% vs. 48% and 17%; p<.001). IQ scores were similarly related to the percentage of time students spent in regular education classes.

Individual, Household, and Community Characteristics

Equity guarantees in education laws and policies require that placement decisions reflect only educational considerations and not other factors, such as differences in student demographic characteristics. Despite this intent, some research has found, for example, that minority students are overrepresented in the population of students in special education (Reschly and Jipson, 1976; Noel and Fuller, 1984; Semmel, Gottlieb, and Robinson, 1979).

Table 3-14

VARIATIONS IN THE PERCENTAGE OF INSTRUCTIONAL TIME IN REGULAR EDUCATION CLASSES BY STUDENTS' FUNCTIONAL ABILITIES

	Instructional Time Spent in Regular Education Classes		
Disability-Related Characteristics	%	S.E.	N
Self-care ability scale score:[†]			
High (11 or 12)	58.0	1.4	2,746
Medium (7 to 10)	27.5	5.1	371
Low (3 to 6)	17.2	6.0	104
Functional ability scale score:[§]			
High (15 or 16)	64.8	1.6	1,732
Medium (9 to 14)	47.7	2.2	1,223
Low (4 to 8)	16.8	4.4	212
IQ Score			
> 110	84.2	3.7	183
91 to 110	74.6	2.1	684
75 to 90	58.8	1.8	1,095
53 to 74	37.6	1.9	796
≤ 52	14.6	2.5	274

[†] Parents rated on a 4-point scale youths' abilities to dress themselves, feed themselves, and get around outside the home. Ratings were summed to create a scale ranging from 3 to 12.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: IQ scores and placement data are based on students' school records. Other data are from parent interviews.

Do these apparent effects of sociodemographics cause some students, such as minorities or those from lower socioeconomic backgrounds, for example, to be overrepresented in less integrated placements?

Table 3-15 demonstrates that students with a pattern of characteristics generally indicative of higher socioeconomic status (SES) spent a significantly greater percentage of time in regular education classes than lower-SES students. For example, white students averaged 60% of their time in regular education, compared with 48% for black students ($p<.001$). Similarly, those from households with annual incomes of more than $25,000 per year averaged a significantly greater percentage of time in regular education than students from lower-income households (67% vs. 51%; $p<.001$). Students from households with two parents spent significantly more time in regular education classes than students from single-parent households (60% vs. 49%; $p<.001$), as did students from suburban or rural areas compared with those attending urban schools (60% vs. 46%; $p<.001$).

Other demographic factors also may be related to placement. For example, Singer et al. (1986) have suggested that gender influences placement, perhaps because males are more likely to exhibit behaviors that make them difficult to teach in regular classrooms (Mercer, 1973).

Table 3-15

VARIATIONS IN THE PERCENTAGE OF INSTRUCTIONAL TIME IN REGULAR EDUCATION CLASSES BY STUDENTS' SOCIOECONOMIC CHARACTERISTICS

Socioeconomic Characteristics	Instructional Time Spent in Regular Education Classes		
	%	S.E.	N
Ethnic background			
White	60.4	1.5	2,263
Black	48.3	2.9	686
Hispanic	43.4	5.5	336
Other	48.9	9.2	111
Household income			
≤ $25,000	50.6	1.8	1,613
> $25,000	67.3	2.0	1,384
Household had:			
Two parents	59.6	1.6	2,194
One parent	48.9	2.4	1,019
School was in:			
Urban area	46.3	2.4	1,466
Suburban area	60.2	1.9	1,503
Rural area	60.1	1.6	1,024

Source: Parent interviews and Quality Education Data on region and urbanicity.

We might also hypothesize an influence of age, with older students experiencing less integration than younger students. Age can reflect prior school achievement; i.e., youth who were older than the typical age-for-grade may well have repeated an earlier grade. One could expect such students to be achieving at a lower level than other students and, hence, to be in more segregated settings. However, gender and age both are related strongly to the nature and severity of disability, as was shown in Chapter 2. For example, males as a group were more dominated by youth with learning disabilities than were females. Further, students who stayed in school until they were older and aged out were in categories such as multiply handicapped, and more often were in segregated placements than youth in such categories as learning disabled, who usually left school at an earlier age (U.S. Department of Education, 1989). Hence, to understand the relationships of gender and age to the percentage of time students spent in regular education, we must look at variations for students who shared the same kind of disability, as shown in Table 3-16.

Table 3-16 shows no systematic gender differences in the percentage of time spent in regular education classes, despite the pattern of somewhat lower abilities among young women when compared with males in the same disability category, as was described in Chapter 2. There is a pattern of variation by age, however, in which students who were older than 18, the usual age for leaving secondary school, generally spent less of their class time in regular education than did younger students. Similarly, there is a pattern of generally less time spent in regular education for youth who were older than the typical age-for-grade, compared with students in the same disability category who were at the typical age for their grade level. Only among youth with learning disabilities was this pattern not apparent.

Finally, recent literature has suggested that placement decisions are as much a result of "where you live" as "what you know" (Blackman, 1989; Noel and Fuller, 1984). For example, Danielson and Bellamy (1989) have demonstrated a significant difference in the use of segregated placements among states in different regions. These findings may reflect historical artifacts, in that there simply are a greater number of segregated settings in some areas. Such regional differences also are apparent in the NLTS, as shown in Table 3-17. The average percentage of time spent in regular education classes by students with disabilities attending regular secondary schools ranged from 49% of class time in the East South Central region to 76% in New England (p<.001).

Table 3-16

VARIATIONS IN INSTRUCTIONAL TIME IN REGULAR EDUCATION CLASSES BY GENDER AND AGE

	Percentage of Instructional Time Spent in Regular Education Classes by Students Who Were:						
	Gender		Age			Older than Age-for-Grade	
Disability Category	Male	Female	15-16	17-18	>18	No	Yes
All conditions	57.0	54.6	55.3	60.5	50.3	62.0	57.6
	(1.3)	(2.1)	(2.1)	(1.6)	(2.0)	(2.4)	(1.1)
N	2,612	1,608	1,266	1,658	1,248	922	2,954
Learning disabled	63.6	64.3	59.2	67.8	63.4	63.8	65.1
	(1.8)	(3.2)	(3.1)	(2.2)	(2.7)	(3.3)	(1.8)
N	615	208	203	306	315	169	629
Emotionally disturbed	57.0	58.9	59.3	57.5	54.8	62.4	56.8
	(2.6)	(4.7)	(3.7)	(3.8)	(4.5)	(4.8)	(2.6)
N	349	96	147	153	147	93	333
Speech impaired	77.8	76.2	78.7	78.4	69.4	86.8	73.7
	(3.0)	(4.3)	(3.9)	(3.9)	(5.1)	(3.4)	(3.2)
N	214	149	121	149	96	118	240
Mentally retarded	33.2	32.0	32.1	35.9	29.9	37.7	36.6
	(1.8)	(2.2)	(2.7)	(2.3)	(2.2)	(3.4)	(1.6)
N	416	294	174	247	290	88	511
Visually impaired	73.5	81.0	76.1	85.6	61.4	91.9	74.6
	(4.6)	(4.8)	(6.0)	(4.0)	(7.6)	(3.1)	(4.3)
N	176	131	110	126	71	108	196
Hard of hearing	62.4	61.4	63.0	60.5	62.7	75.4	59.2
	(3.6)	(4.1)	(5.0)	(4.3)	(4.9)	(4.6)	(3.2)
N	238	230	144	186	138	120	321
Deaf	45.4	52.3	44.2	49.3	51.6	53.6	50.8
	(5.2)	(4.6)	(5.5)	(6.1)	(6.2)	(7.3)	(3.9)
N	110	127	75	85	77	53	171
Orthopedically impaired	49.6	44.8	56.4	52.4	37.6	72.7	45.3
	(4.3)	(4.3)	(5.3)	(4.6)	(5.3)	(5.4)	(3.7)
N	230	188	135	140	143	87	294
Other health impaired	58.7	72.9	60.2	71.7	56.3	84.4	63.7
	(5.1)	(5.2)	(6.4)	(5.3)	(8.1)	(4.5)	(4.7)
N	148	105	78	105	70	67	164
Multiply handicapped	19.9	16.6	20.0	15.4	19.9	—	28.5
	(4.5)	(5.4)	(6.4)	(5.4)	(5.7)		(5.0)
N	114	77	57	60	74	18	104

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent school year.

Table 3-17

REGIONAL VARIATIONS IN INSTRUCTIONAL TIME SPENT IN REGULAR EDUCATION CLASSES

Region	Instructional Time Spent in Regular Education Classes %	S.E.	N
New England	76.5	6.9	59
Midatlantic	50.3	3.1	441
South Atlantic	60.9	2.1	928
East North Central	57.0	2.5	777
East South Central	48.6	3.3	263
West North Central	72.5	3.7	220
West South Central	55.0	3.9	516
Mountain	50.1	4.0	421
Pacific	51.3	3.8	602

Source: Data on region are from the U.S. Census Bureau. Placement data are from students' school records for their most recent school year.

School Factors

The final category of hypothesized influences on the extent of students' integration in regular education involves the characteristics of the students' schools, their policies toward mainstreaming, and the students' instructional programs in those schools, including the following:

- *School size.* Larger schools may have the critical mass of students with disabilities that is necessary to make a special class or other special education placements available, leading to the hypothesis that students in larger schools would spend less time in regular education classes. Data presented in Table 3-18 confirm this expectation. Students in larger schools averaged 51% of their time in regular education, compared with 66% of time for students in smaller schools ($p<.001$).

- *Low-income student enrollment.* Schools with a greater percentage of low income students often have fewer resources with which to serve students; fewer resources can result in fewer placement options (Fairweather, Stearns, and Wagner, 1989) because of the higher costs of some placement options (Moore et al., 1988). On this basis, one might expect that students who attended schools with a higher percentage of poor students would spend more time in regular classes (Noel and Fuller, 1984). On the other hand, we have seen that students from lower-SES households averaged less instructional time in regular education than higher-SES students. Because lower-SES students often attend schools with concentrations of poor students, one might see less integration for students in those schools as a group. In fact, Table 3-18 shows that students attending schools with more than half of the student body in poverty averaged only 50% of their time in regular education, compared with 63% of time for students in schools with less than 10% of their student body from poor households (p<.001).

- *Availability of other programs in the school for students with learning problems.* The choice of a placement may be affected by the number and nature of placement options available within a school/district. Students in schools with compensatory education programs, such as Chapter 1, might be expected to have more integrated placements than would students in schools with only regular education placements as an alternative to special education. However, no significant difference in percentage of time in regular education is seen in Table 3-18 for students attending schools with compensatory education programs compared with students attending schools without such programs.

- *Support offered mainstreamed students or teachers of mainstreamed students.* Students who attended schools that offered support to teachers with mainstreamed students or to mainstreamed students themselves would be expected to have more integrated placements than students whose schools offered no such support. If students are expected to "sink or swim" on their own, schools may be less willing to try students in mainstreamed settings. This expectation is confirmed in Table 3-18, which shows a pattern of marginally higher percentages of time in regular education for students attending schools with policies that supported mainstreamed students and teachers. For example, students attending schools in which regular education teachers with mainstreamed special education students routinely received in-service training on mainstreaming averaged 61% of their time in regular education, compared with 54% among students attending schools without such support for teachers (p<.01). Similarly, the average was 64% for students with disabilities in schools in which regular education teachers were given a smaller student load if they had mainstreamed special education students, and 56% for students in schools that did not offer that support routinely (p<.05).

- *Courses taken.* Earlier analyses in this report suggest that taking vocational and nonacademic courses may be paths to greater regular education integration. Although the data in Table 3-18 show a marginally higher average percentage of time in regular education for students who took vocational education (57% vs. 52%), the difference is not statistically significant. The multivariate analysis presented below, however, suggests that vocational course taking was related to significantly greater time in regular education when disability, demographic, and school factors were controlled for. A statistically significant difference was apparent in the percentage of time spent in regular education by students who took at least one nonacademic course (57%) compared with those who did not (51%; p<.05).

Table 3-18

VARIATIONS IN PERCENTAGE OF INSTRUCTIONAL TIME IN REGULAR EDUCATION FOR SECONDARY STUDENTS WITH DISABILITIES, BY SCHOOL FACTORS

	Instructional Time Spent in Regular Education Classes		
School Factors	%	S.E.	N
Average daily student attendance			
< 500 students	66.4	2.2	535
500 to 1,100 students	56.5	1.7	1,440
> 1,100 students	51.3	2.1	1,890
Proportion of students from low-income families			
Less than 10%	62.7	2.5	903
10% to 25%	56.8	2.0	1,298
26% to 50%	56.0	2.2	966
More than 50%	50.2	2.6	653
Compensatory education programs available			
Yes	56.3	1.3	3,321
No	59.2	2.8	593
Mainstreamed students were expected to keep up with regular education classes without help			
Yes	53.6	2.2	1,202
No	58.8	1.5	2,165
Schools reported that teachers with mainstreamed students were routinely provided:			
Special materials for mainstreamed students			
Yes	58.8	1.6	2,011
No	54.8	1.9	1,350
In-service training on mainstreaming			
Yes	60.7	1.8	1,549
No	54.2	1.7	1,812
Aides in the classroom			
Yes	60.2	2.3	1,305
No	55.7	1.5	2,056
Reduced class size/student load			
Yes	63.6	3.0	465
No	56.1	1.3	2,896
Student took:			
Vocational education			
Yes	57.3	1.2	3,246
No	52.2	2.6	981
Nonacademic courses			
Yes	57.1	1.2	3,572
No	50.6	2.9	655

Source: Survey of Secondary Special Education Programs and students' school records from most recent school year.

Multivariate Analysis of Factors Related to the Percentage of Time in Regular Education Classes

We conducted a multivariate linear regression analysis to identify factors with significant relationships to the percentage of instructional time students spent in regular education classes. This multivariate analysis reveals the independent effects of each hypothesized explanatory factor, statistically holding constant the effects of other factors in the analysis.* (See Appendix A for a discussion of the purpose and interpretation of multivariate analyses.)

We find that, as a whole, disability, demographic, and school program variables explain just over one-third of the variation in the percentage of instructional time spent in regular education among students with disabilities in regular secondary schools (r^2=.38). As we hypothesized, the vast majority of this explanatory power belongs to disability-related factors; they explained 34% of the variation in the extent of mainstreaming. Demographic factors explained another 2% of variation,† as did school-related factors. Hence, the extent to which a student's instructional program involved regular education reflected the nature and severity of his or her disability more than other factors examined, as intended by law. However, the majority of variation in the extent of regular education involvement remains unexplained by disability type or the other factors we examined. In making placement decisions for individual students, educators have at their disposal much more detailed information about a student's disability and educational background than was captured by the variables included here. They also are aware of the specific placement options available in the school and community, for which we have available only proxy measures, such as school size. Thus, it is not surprising that a large amount of the variation in regular education instructional time remains unexplained.

Table 3-19 presents the estimated percentage point change in the amount of instructional time students spent in regular education classes that is associated with each of the variables in the multivariate analysis. We find further confirmation of the powerful relationships between educational programs and both the nature and severity of students' disabilities. Not only were

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[*] The regression analysis is unweighted. Not all students were included in this analysis because they did not have data for all factors. Means and correlations for the students included in this analysis (n=2,227) and for all students in regular secondary schools are included in Appendix D, Table D3-2. The means and correlations reveal that the sample of students in the multivariate analysis is virtually identical to the full sample of students in regular schools in their mean values on variables in the model, except for the percentage of students who took occupational vocational training. This percentage is significantly higher for the sample of students in the multivariate analysis than for students in regular schools as a whole (60% vs. 47%; p<.001). This results from including in the analysis a variable indicating whether students were older than the typical age for their grade level. This required that students be assigned to a grade level; those eliminated from the analysis were those not assigned to a grade level, who also took less occupationally oriented vocational education. The relationship between vocational training and the percentage of time in regular education is similar for the two groups however, suggesting that the bias is not likely to affect the relationships identified in the analysis.

[†] This finding is consistent with findings from an analysis of placement decisions performed for elementary students by Singer et al. (1986), in which demographic factors explained very little of the variation in regular education placements.

Table 3-19

ESTIMATED CHANGE IN PERCENTAGE OF INSTRUCTIONAL TIME SPENT IN REGULAR EDUCATION CLASSES ATTRIBUTED TO DISABILITY, DEMOGRAPHIC, AND SCHOOL FACTORS

Independent Variables	Estimated Percentage Points Change in Time Spent in Regular Education for Each Unit Change in the Independent Variable
Disability-related characteristics	
Youth classified as the following (rather than learning disabled):†	
Emotionally disturbed	-3.66
Speech impaired	16.63***
Mildly/moderately mentally retarded	-13.01***
Deaf	-14.97***
Hard of hearing	5.28*
Visually impaired	22.60***
Orthopedically impaired	-2.25
Other health impaired	5.11
Severely impaired (SMR, multiply handicapped)	-11.34***
Functional mental skills scale	2.57***
Self-care ability scale score	1.07*
IQ score	.46***
Demographic characteristics	
Age in most recent school year	-.90*
Student was older than typical age-for-grade	-1.99
Student was male, not female	-1.29
Student was minority, not nonminority	-.67
Household income (5 categories)	1.20**
Single-parent household, not two-parent	-.81
Student attended school in following type of community (not suburban):	
Urban	-2.34
Rural	1.51
Student attended school in following region (rather than West North Central):	
New England	-2.27
Midatlantic	-13.31***
South Atlantic	-2.35
East North Central	-9.90***
East South Central	-10.81***
West South Central	-3.26
Mountain	-9.32**
Pacific	-4.15

Table 3-19 (Concluded)

ESTIMATED CHANGE IN PERCENTAGE OF INSTRUCTIONAL TIME SPENT IN REGULAR EDUCATION CLASSES ATTRIBUTED TO DISABILITY, DEMOGRAPHIC, AND SCHOOL FACTORS

Independent Variables	Estimated Percentage Points Change in Time Spent in Regular Education for Each Unit Change in the Independent Variable
School factors	
Student took:	
Occupationally oriented vocational course(s)	8.61***
Nonacademic course(s)	7.01***
Mainstreamed students were expected to keep up in regular education classes without help	-3.13*
School provides to regular education teachers with mainstreamed students:	
Special materials for mainstreamed students	-1.29
In-service training on mainstreaming	2.68*
Classroom aides	-1.10
Smaller class size	1.12
Average daily attendance at the school	-.00
Percentage of low-income students in the school (4 categories)	.68
Compensatory education programs available in the school	-2.00
Intercept	-14.76

Notes: Adjusted r^2=.38
N = 2,227

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* $p < .05$.
** $p < .01$.
*** $p < .001$.

there significant differences for youth in different disability categories, but we find that both functional scales also contributed significantly to explaining the variation in time spent in regular education, independent of the category of disability. For example, students who scored at the highest level on the functional mental skills scale were estimated to have spent 15 percentage points more of their instructional time in regular education than a student in the same disability category who had a score of 10 on this 16-point scale. Similarly, among students in the same disability category, a student who scored highest on the 12-point self-care scale was estimated to have spent 4 percentage points more of his or her class time in regular education than a student scoring 8 on the scale. Further, the independent effects of IQ suggest that, for students in the same disability category and with the same functional abilities, a student with an IQ of 100, for example, spent about 9 percentage points more of his/her instructional time in regular education than a student with an IQ score of 80. These findings suggest an individualization of placement assignments, in that the percentage of time students were placed in regular education reflected their functional profiles, not type of disability alone.

Consistent with the finding that demographic characteristics add little to the explanatory power of a multivariate analysis beyond that of disability factors alone, only three demographic factors had statistically significant relationships to time spent in regular education:

- *Household income.* The multivariate analysis confirms that students from households with higher incomes spent slightly more of their instructional time in regular education settings than did students from lower-income households (p<.001), regardless of their status on the other disability or demographic factors in the analysis (a similar finding is reported by Singer et al., 1986, for students with learning, physical, and multiple impairments). A low income may proxy for the educational disadvantages of students in poverty, which could result in poor educational performance in ways that were not measured or held constant by other factors in the model. Students with poorer performance would be those spending relatively less time in regular education classes.

  Another explanation might relate to parent involvement or advocacy. Parents from wealthier households may have had the knowledge and resources to lobby for greater regular education involvement, factors not measured or included in NLTS analyses. Recent findings from a survey of a national sample of parents of students with disabilities supports this interpretation (ICD, 1989). Parents with greater education and higher incomes were found to be significantly more knowledgeable about their children's rights under special education laws and were more active in groups or organizations that promoted or provided information about children with disabilities.

- *Age.* Younger students spent a significantly greater percentage of time in regular education settings than older students (p<.001), irrespective of disability-related factors. Perhaps as students approached the typical age for school completion, schools attempted to support students with disabilities who remained in school in their efforts to graduate by placing them for more of their time in special education classes. These classes tend to be smaller, grading standards may be less stringent, and analysis reported in Chapter 4 suggests that students were less likely to fail special education courses, thereby being more likely to graduate. Another explanation may relate to the propensity for students with poor academic performance, who were predominantly in regular education placements, to drop out of school; the older cohort of students would not include these dropouts, leaving more students with less regular education involvement. There was no significant relationship to students' being older than the typical age-for-grade, independent of age itself.

- *Region.* Significant differences in instructional integration were apparent based on the region in which students attended school; such differences were independent of students' disability categories, functional abilities, IQs, or other demographic factors. This finding supports research by Danielson and Bellamy (1989), which suggests that the historical and/or political forces in some states or regions reinforce segregation of students who in other areas of the country would be mainstreamed.

Although their relationships are statistically significant, the estimated differences in percentage of time spent in regular education classes attributable to these factors generally were not large. Further, there were no independent effects found in this analysis for the gender or ethnicity of students, nor for whether students lived in urban vs. suburban or rural areas or came from single-parent households. The absence of a relationship for minority students, those living in rural areas, and those from single-parent households may be largely a result of the fact that household income also was included in the analysis.

Like demographic characteristics, school factors contributed little to the explanatory power of the analysis. However, we do find a small but statistically significant relationship for the following factors:

- *Taking occupationally oriented vocational education.* As was suggested in earlier analysis, occupationally oriented vocational courses were likely to be regular education courses. Students enrolled in such courses were estimated to have spent about 9 percentage points more of their time in regular education than students who did not take occupationally oriented vocational education, irrespective of other factors in the model.
- *Taking nonacademic courses.* As with vocational courses, students who took at least one nonacademic course spent a significantly greater amount of their class time in regular education courses (7 percentage points) than students who did not take such courses.
- *Expectations for mainstreamed students.* There was a significant negative relationship between students' time in regular education and their attendance at schools that expected mainstreamed students to keep up in their regular education classes without help. Independent of other factors in the model, students in "sink or swim" schools were estimated to have spent 3 percentage points less time in regular education classes than students in other schools. Perhaps the absence of support for mainstreamed students somewhat dissuaded those responsible for placement decisions from placing students in regular education classes for as many of their courses.
- *In-service training on mainstreaming.* Offering in-service training to regular education teachers with mainstreamed students had a small, positive, statistically significant relationship to time spent in regular education. Students in schools that provided in-service training on mainstreaming to regular education teachers were estimated to have spent about 3 percentage points more time in regular education, independent of other factors, than students in schools that did not offer that support to teachers. The interpretation of this relationship is not clear, however. It is reasonable to hypothesize either that the prevalence of mainstreaming may have prompted the offering of in-service training or, conversely, that the skills and understanding gained from in-service training on mainstreaming may have encouraged educators to mainstream students for more of their instructional time. No significant independent relationships are apparent for school size, the socioeconomic status of the student body, or the availability of other compensatory education programs.

Although the independent relationships of each of these school-related factors to the percentage of time students spent in regular education courses is fairly small, the amount of change associated with them is additive. Thus, for example, students who took both occupational training and nonacademic courses in their most recent school year would have spent sixteen percentage points more time in regular education classes (about the equivalent of a full course) than students with the same disability and demographic characteristics who took academic courses only.

Summary

More than 9 of 10 secondary students with disabilities (92%) attended regular schools with nondisabled students in their most recent school year. This section has described the varying educational programs of those students along the following dimensions:

- *School context.* Students selected for the NLTS sample in the 1985-86 school year from grades 7 through 12 (or equivalent ages) largely were in high schools by 1986-87 (70%). About 8% of students attended middle schools, and 1 in 5 students attended schools serving another combination of grades. Schools generally were large. High schools averaged 1,151 students, middle schools averaged 751 students, and schools serving other grade-level combinations averaged enrollments of 607 students. On average, there were 89 secondary special education students enrolled in these schools, or about 9% of the student body. Students with disabilities tended to cluster in schools with other students with the same disabilities.

- *Access to programs.* The NLTS explored the extent to which secondary students with disabilities attending regular schools had access to vocational and life skills programs at their schools. About 9 of 10 students had access to life skills training, although that training generally did not include community-based experiences. Regarding vocational programs, job counseling and job readiness programs were reported to be available in schools attended by 9 of 10 students, whereas job placement and work experience programs were available in schools attended by about 6 of 10 students. Postemployment services were available in schools attended by 38% of students. Not all students had equal access to these various program options. Programs were not likely to be available to students until they reached senior high school grade levels (i.e., grade 9 or above). Even in the upper grades, however, a significant portion of students did not have access to the programs we examined. For example, 1 in 5 students in 12th grade did not have access to job skills training in their secondary schools. Programs were least likely to be available to students who were not assigned to a specific grade level, students who tended to be more severely impaired than students at specific grade levels.

- *Course taking.* The NLTS explored the extent to which students took academic and vocational courses that potentially could help them to prepare for postsecondary education or employment. More than 90% of students in most disability categories took at least one academic course in their most recent school year, spending 13 to 15 hours of class time per week in them; 62% of students with multiple impairments took at least one academic course. Academic courses took a larger percentage of students' instructional time at the lower grade levels than in 11th or 12th grade. In the upper grades, vocational courses played a bigger role. Overall, 65% of students with disabilities took at least one vocational education course in their most recent school year (either prevocational, occupationally specific, or home economics), and spent an average of 4 hours per week in them. Of students taking any vocational education, 86% took training in a specific labor market area. Construction trades and office occupations were the most common areas of training. Gender differences were marked, however. Young women students who took vocational courses were significantly less likely than males to have their vocational courses be occupationally specific (68% vs. 85%). Women also were more likely to have their training be in office occupations, food service, or personal services, compared with men, who concentrated more in construction and machine trades.

- *Support services provided.* Overall, 53% of secondary special students with disabilities were reported by their schools or parents to have received one or more of the following support services from the schools: speech/language therapy, occupational therapy/life skills training, personal counseling/therapy, help from a tutor/reader/interpreter, or physical therapy/mobility training. Generally, students received one such service from their schools.
- *Policies and practices regarding mainstreamed students and their regular education teachers.* Six of 10 secondary students with disabilities attended regular schools in which special education students were held to the same grading standard in regular education classes as nondisabled students. More than 1 in 3 (35%) attended schools in which mainstreamed students with disabilities were expected to keep up with regular education classes without special help. Regular education teachers with mainstreamed special education students in their classes were given a variety of forms of support. Virtually all students attended schools in which regular education teachers routinely received consultation support from special education teachers. About half of students (53%) attended schools in which regular education teachers received special materials to use with mainstreamed special education students in their classes, and 44% of students attended schools in which teachers were given in-service training on mainstreaming. Fewer students attended schools in which regular education teachers were given classroom aides (28%) or smaller classes (11%) because they had mainstreamed students in their classes.
- *Classroom placements.* Overall, 86% of secondary students with disabilities spent at least some of their class time in regular education classes. The average amount of class time was 56% for students as a group, although this ranged widely, from 77% of class time for students with speech impairments to 19% of class time for students with multiple handicaps. Overall, 17% of students took all of their courses in regular education classes, including 5% of students who had been in special education in the 1985-86 school year but had since been declassified.

Multivariate analysis reveals that variation in the percentage of time spent in regular education classes was largely explained by disability-related factors, which is consistent with the intent of the law. The percentage of time spent in regular education classes was significantly higher for students in particular disability categories and, independent of the type of disability, for those with higher functional abilities and IQ. A larger percentage of time was spent in regular education classes by students who were from higher-income households and those who were younger. Significant regional differences also were apparent. Some school characteristics, policies, and programs also were significantly related to the amount of time students were mainstreamed. Students spent significantly more time in regular education, independent of other factors, if they took occupationally specific vocational training or nonacademic classes, if they attended schools that provided in-service training on mainstreaming to regular education teachers with mainstreamed students, or if they attended schools that did not expect mainstreamed special education students to keep up in regular education classes without help.

Analyses later in this report will explore the extent to which variations such as these in the characteristics of students' schools and programs were related to their school performance and transition outcomes.

Educational Programs of Students Attending Special Schools Serving Only Students with Disabilities

Schools that exclusively serve students with disabilities have played an important role in special education for many years. Indeed, before the advent of P.L. 94-142 and the movement to ensure a free, appropriate public education to all students, special schools often were the only educational settings open to students with some kinds of disabilities. Special schools continue to be the placement considered most appropriate for some students. Such schools vary widely. Most are day schools, although there continue to be many residential schools for students with disabilities. Some special schools are state operated, some are administered by individual public school districts, and some are private. Some special schools limit their enrollment to students with a specific disability (e.g., schools for deaf students), whereas some serve students with a variety of disabilities.

Although only about 8% of secondary students with disabilities attended special schools in their most recent school year, as we showed earlier in Figure 3-1, 35% of youth classified as visually impaired and 41% of those with multiple impairments attended special schools. Among students classified as deaf, 63% were enrolled in special schools, as were virtually all students who were deaf/blind (94%). Most special school students (more than 8 in 10) attended day schools and lived at home with parents. Among special school students who were deaf, 15% attended residential schools, as did 11% of special school students with visual impairments and 8% of those with multiple handicaps.

Attending a special school influences the nature of the peers with which students interact, the kinds of programs to which they have access, the kinds of support services they receive, and other aspects of their school experiences. The remainder of this section contrasts selected school experiences of students who attended special schools and those who attended regular schools within the three disability categories with relatively high rates of enrollment in special schools: deaf, visually impaired, and multiply handicapped.

Paralleling somewhat our discussion of students attending regular secondary schools, we first consider the characteristics of the students themselves, as an important context for understanding the variations in programs they experience. We then consider school context and describe ways in which the characteristics of special schools differed from regular secondary schools attended by students in the same disability categories. The access students in special schools had to vocational and life skills programs is then described, followed by a discussion of course taking and support services received by students.

Student Characteristics

Recently, Allen, Rawlings, and Schildroth (1989) have reported for deaf students that "special schools have traditionally enrolled students with more severe hearing impairments than have local programs. They also enroll large numbers of minority and multihandicapped children and youth and many students with academic deficits...precisely those students in greatest need of educational and rehabilitative transition services" (p. 205). We have used NLTS data to examine whether similar differences between regular and special school students existed for those with visual and multiple impairments, as well as those who were deaf. Among students in these categories, we find that special schools and regular schools attracted and served students who differed in important ways. Table 3-20 presents data on selected individual and family characteristics of students who attended regular and special schools. We find that special school students differed from regular school students in the same disability categories in terms of:

- *Age.* Special school students were marginally older on average than regular school students. Further, special school students with sensory impairments were significantly more likely to be at least 1 year older than the typical age for their grade level than were regular school students in the same disability categories ($p<.05$).
- *Household income.* Special school students with sensory impairments were significantly more likely to be from low-income households ($p<.05$) and, among deaf students, from households whose heads were not high school graduates (38% vs. 25%; $p<.05$). There were no significant differences based on students' ethnicity.
- *School status.* Special school students in all three categories were significantly less likely than regular school students to be assigned to a specific grade level ($p<.01$).
- *Severity of disability* Special school students generally scored lower on measures of self-care skills and functional mental skills than did regular school students ($p<.05$). Although there were no differences in IQ among youth in the deaf category, among those with visual or multiple impairments, special school students were significantly more likely than regular school students to have IQ scores below 75 ($p<.05$). Among those with visual impairments, special school students also were more likely to be completely blind (rather than partially sighted) than were regular schools students (52% vs. 23%; $p<.001$).

Chapter 2 revealed that students with disabilities as a whole were more likely to experience the educational disadvantages of both disability and poverty than were students as a whole. Here, we see that special school students appeared to face even more severe challenges to success in schooling and in their transition to adulthood than did their regular school counterparts, due to both socioeconomic and disability-related disadvantages.

With the emphasis in special education on individualized programs, such differences between students attending regular and special schools should imply a difference in the schools themselves and in the kinds of programs they made available to students. The next section explores the extent of such differences.

Table 3-20

CHARACTERISTICS OF STUDENTS IN REGULAR AND SPECIAL SCHOOLS IN SELECTED DISABILITY CATEGORIES

	Disability Category and School Enrollment:					
	Deaf		Visually Impaired		Multiply Handicapped	
Student Characteristics	Regular School	Special School	Regular School	Special School	Regular School	Special School
Demographics						
Average age of students in their most recent year in secondary school	17.9	18.4	17.2	18.2	17.8	18.4
	(.2)	(.2)	(.1)	(.2)	(.2)	(.2)
N	292	519	435	357	250	395
Percentage of youth at least 1 year older than typical age for grade	73.1	85.7	69.4	83.4	81.8	78.0
	(4.7)	(2.8)	(4.6)	(4.5)	(5.8)	(7.2)
N	233	397	324	235	130	88
Percentage of youth from household with head not a high school graduate	24.8	37.9	34.5	38.4	35.5	24.1
	(4.6)	(4.0)	(4.3)	(5.7)	(6.1)	(4.7)
N	250	423	368	286	193	283
Percentage of youth from household with annual income less than $25,000	49.5	73.8	60.1	73.3	76.0	62.2
	(5.6)	(3.8)	(4.8)	(5.3)	(5.5)	(5.4)
N	237	391	327	256	186	272
School status						
Percentage of students not assigned to a specific grade level	6.2	16.7	4.5	31.8	47.4	77.2
	(2.5)	(2.8)	(2.0)	(5.3)	(6.0)	(4.0)
N	245	459	339	306	209	341
Disability-related characteristics						
Percentage of youth with high:						
Self-care abilities[†]	95.0	87.6	76.1	51.8	46.6	30.9
	(2.3)	(2.7)	(3.8)	(5.9)	(6.2)	(4.8)
Functional mental skills[§]	54.1	40.0	35.6	21.4	16.8	9.8
	(5.3)	(4.1)	(4.4)	(5.0)	(4.7)	(3.1)
N	249	410	357	272	198	298
Percentage with IQ below 75	14.1	16.4	19.8	35.4	73.8	90.0
	(4.7)	(3.4)	(4.7)	(5.7)	(6.0)	(3.2)
N	162	306	200	284	162	265
Percentage who were completely blind	NA	NA	23.1	52.5	NA	NA
			(7.5)	(5.1)		
N			373	263		

Note: Standard errors are in parentheses.

[†] Parents rated on a 4-point scale youths' abilities to dress themselves, feed themselves, and get around outside the home. Ratings were summed to create a scale ranging from 3 to 12. High ability is defined as a scale value of 11 or 12.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16. High ability is defined as a scale value of 15 or 16.

Source: Parent interviews and students' school records from their most recent school year.

School Context

Special schools differed significantly from schools serving nondisabled students in several ways besides the characteristics of their students:

- *Grade levels served.* As described earlier in this chapter, most regular school students attended high schools (schools that served grades 9 or 10 through 12 only). Few special school students in the three disability categories we have examined attended high schools (8%); most special school students (81%) attended schools that served all grades or were ungraded (p<.001). This continuum of grade levels in special schools is consistent with the fact that a significantly larger percentage of special school students were not assigned to a specific grade level.
- *Size.* Special schools generally were much smaller than regular secondary schools. Their average daily attendance was between 150 and 200 students, compared with an average daily attendance at regular schools of between 928 and 1,341 (p<.001). Combined with the fact that special schools generally served all grade levels, their small size suggests that there were fewer students at any particular age level to act as age peers.
- *Enrollment of low-income students.* Special school students with sensory impairments were much more likely to be part of a student body with a high percentage of students from households in poverty than were such students in regular schools. For example, 7% of deaf regular school students attended schools in which a majority of the student body came from low-income households, compared with 52% of deaf students who attended special schools (p<.001). The difference in the poverty status of students in the multiply handicapped category was not statistically significant. As with the individual ethnicity of students, there were no significant differences in the ethnic distributions of the student bodies of regular vs. special schools.

Access to Programs

Not only did special schools differ from regular schools serving students in the deaf, visually impaired, and multiply handicapped categories in the aspects described above, the programs they made available to their students also differed. Table 3-21 demonstrates that most students in the selected categories reportedly had access to life skills training, regardless of the kind of school they attended, but that special school students were even more likely than regular school students to have access to such programs. For example, life skills training was reportedly offered in the schools attended by all deaf special school students, but in the schools attended by only 94% of deaf regular school students (p<.05). Special school students also were significantly more likely to have access to life skills programs in earlier grades. For example, 26% of regular school students with visual impairments attended schools that offered life skills training to special education students in 7th or 8th grade; 69% of special school students had access to such programs at those grade levels (p<.001). Somewhat surprisingly, students in the multiply handicapped category were significantly less likely to have access to life skills training at most grade levels than were students in the deaf or visually impaired categories, regardless of the nature of the schools they attended (p<.01).

Table 3-21

ACCESS TO PROGRAMS IN REGULAR AND SPECIAL SCHOOLS ATTENDED BY STUDENTS IN SELECTED DISABILITY CATEGORIES IN 1986-87

	Disability Category and School Enrollment:					
	Deaf		Visually Impaired		Multiply Handicapped	
Students Characteristics	Regular School	Special School	Regular School	Special School	Regular School	Special School
Percentage in schools that provided:						
Life skills training:						
At all	94.3 (2.4)	100.0 (.0)	88.4 (3.1)	100.0 (.0)	95.5 (2.7)	99.4 (.8)
In grade 7 or 8	19.7 (7.9)	61.8 (3.4)	26.0 (6.5)	69.1 (5.1)	31.8 (8.0)	41.1 (5.6)
In grade 9 or 10	89.7 (3.4)	79.0 (2.9)	89.3 (3.2)	84.9 (3.9)	65.2 (6.6)	49.4 (5.3)
In grade 11	85.9 (4.1)	82.6 (2.7)	84.0 (4.0)	80.0 (4.4)	59.9 (7.0)	49.0 (5.4)
In grade 12	86.4 (4.1)	78.0 (2.9)	79.8 (4.3)	91.5 (3.1)	59.9 (7.0)	48.0 (5.4)
In ungraded classes	81.2 (8.5)	64.0 (3.7)	64.3 (7.2)	76.2 (4.7)	76.2 (7.8)	94.7 (2.6)
Community-based life skills training:						
Rarely or never	19.0 (3.8)	1.9 (1.0)	28.2 (4.2)	.0 —	18.4 (4.8)	.9 (.9)
At least weekly	13.8 (2.4)	62.4 (3.3)	13.9 (3.3)	32.1 (5.2)	27.6 (7.8)	55.8 (5.9)
N	224	476	282	314	169	322
Job/career counseling:						
At all	91.9 (2.8)	98.2 (.9)	92.0 (2.6)	98.6 (1.3)	78.3 (5.4)	93.7 (2.6)
In grade 7 or 8	7.9 (5.7)	29.5 (3.2)	17.5 (5.5)	16.1 (4.0)	24.5 (7.8)	21.6 (4.6)
In grade 9 or 10	90.8 (3.4)	64.2 (3.4)	87.8 (3.4)	58.6 (5.4)	67.5 (6.4)	50.1 (5.3)
In grade 11	86.3 (4.1)	84.0 (2.6)	83.0 (4.2)	82.8 (4.1)	64.3 (7.1)	48.8 (5.5)
In grade 12	86.2 (4.1)	88.9 (2.2)	80.3 (4.5)	83.7 (4.0)	59.8 (7.4)	49.4 (5.5)
In ungraded classes	62.8 (10.6)	30.4 (3.5)	49.2 (7.6)	59.6 (5.5)	56.7 (9.1)	77.7 (4.8)
Job readiness training:						
At all	95.2 (2.2)	97.4 (1.1)	88.2 (3.1)	96.8 (1.9)	83.0 (4.9)	98.1 (1.4)
In grade 7 or 8	13.9 (7.2)	46.3 (3.6)	10.4 (4.5)	22.6 (4.6)	23.0 (7.5)	28.5 (5.0)
In grade 9 or 10	87.5 (4.2)	72.7 (3.2)	79.7 (4.3)	55.1 (5.5)	54.8 (7.1)	50.0 (5.3)
In grade 11	90.0 (3.3)	94.4 (1.6)	86.2 (3.7)	87.6 (3.6)	66.5 (6.8)	54.9 (5.2)
In grade 12	89.6 (3.3)	94.2 (1.7)	86.2 (3.8)	87.6 (3.6)	66.4 (6.9)	54.9 (5.2)
In ungraded classes	81.8 (8.4)	37.9 (3.7)	56.4 (7.5)	43.6 (5.5)	51.2 (9.2)	84.8 (4.2)
Job skills training:						
At all	61.8 (5.0)	92.3 (1.9)	78.0 (4.0)	72.8 (4.9)	64.4 (6.2)	60.8 (5.1)
In grades 9 or 10	74.6 (6.4)	57.9 (3.5)	64.0 (5.7)	46.9 (5.5)	50.7 (7.4)	24.7 (4.8)

Table 3-21 (Concluded)

ACCESS TO PROGRAMS IN REGULAR AND SPECIAL SCHOOLS ATTENDED BY STUDENTS IN SELECTED DISABILITY CATEGORIES IN 1986-87

	Disability Category and School Enrollment:					
	Deaf		Visually Impaired		Multiply Handicapped	
Students Characteristics	Regular School	Special School	Regular School	Special School	Regular School	Special School
Percentage in schools that provided:						
Job skills training (concluded):						
In grade 11	83.0	91.1	87.7	65.6	57.2	36.8
	(4.9)	(2.0)	(3.5)	(5.2)	(7.0)	(5.3)
In grade 12	82.9	91.0	87.4	66.5	57.4	39.8
	(4.8)	(2.0)	(3.6)	(5.2)	(7.0)	(5.4)
To unassigned students	48.8	16.5	39.3	34.0	47.1	44.3
	(10.9)	(2.9)	(7.4)	(5.3)	(9.3)	(5.7)
Job development/placement services:						
At all	82.2	60.4	73.7	56.7	60.0	84.2
	(4.0)	(3.5)	(4.2)	(5.4)	(6.4)	(3.8)
In grade 10	49.5	15.0	36.7	6.7	32.4	21.0
	(9.2)	(2.6)	(6.3)	(2.8)	(7.5)	(4.4)
In grade 11	83.4	37.7	72.8	39.8	59.8	31.0
	(4.5)	(3.5)	(5.1)	(5.4)	(7.1)	(4.9)
In grade 12	86.8	59.6	79.5	49.7	64.2	48.2
	(3.8)	(3.5)	(4.3)	(5.5)	(6.7)	(5.3)
To unassigned students	47.6	28.0	41.8	38.3	47.0	72.0
	(10.9)	(3.4)	(7.4)	(5.4)	(9.2)	(5.2)
Work experience:						
At all	75.4	93.4	65.9	97.2	59.3	89.0
	(4.5)	(1.8)	(4.6)	(1.8)	(6.5)	(3.3)
In grade 9 or 10	65.9	57.2	49.5	69.0	36.6	34.6
	(7.3)	(3.7)	(5.8)	(5.4)	(7.4)	(5.2)
In grade 11	77.9	84.6	66.9	86.8	57.1	43.9
	(4.9)	(2.7)	(5.1)	(3.9)	(7.5)	(5.4)
In grade 12	81.7	91.0	69.0	87.8	58.3	51.0
	(4.5)	(2.1)	(5.1)	(3.8)	(7.3)	(5.4)
To unassigned students	49.5	35.6	40.8	47.4	42.8	75.5
	(11.0)	(3.9)	(7.4)	(5.9)	(9.2)	(5.0)
Postemployment services:						
At all	61.0	46.8	47.1	35.0	35.6	44.5
	(5.1)	(3.5)	(4.8)	(5.2)	(6.4)	(5.2)
In grade 10	38.5	18.3	19.8	.0	18.1	2.3
	(9.7)	(2.9)	(5.6)	—	(6.8)	(1.8)
In grade 11	60.3	41.3	37.3	13.6	26.5	12.4
	(8.0)	(3.7)	(6.3)	(4.0)	(7.3)	(3.8)
In grade 12	79.0	43.1	61.9	29.0	43.9	16.8
	(5.3)	(3.7)	(5.9)	(5.3)	(7.7)	(4.3)
In ungraded classes	37.0	29.6	33.0	19.6	12.2	42.7
	(11.1)	(3.7)	(7.3)	(4.7)	(6.1)	(5.8)
N for all grades	224	472	341	314	166	323
N for grade 7 or 8	62	467	140	311	81	303
N for grade 9 or 10	115	439	216	286	117	303
N for grade 10	74	420	155	285	85	283
N for grade 11	100	427	183	285	101	290
N for grade 12	139	431	210	285	114	291
N for ungraded classes	54	382	127	285	76	281

Note: Standard errors are in parentheses.

Source: Survey of Secondary Special Education Programs.

The relatively greater emphasis of special schools on life skills training is evident in the nature of the training, as well as its accessibility. Special school students were significantly more likely to have access to life skills programs that included frequent community-based experiences than were students in regular schools. For example, 62% of deaf special school students had access at least weekly to community-based experiences as part of life skills training programs, compared with 14% of deaf students who attended regular schools (p<.001).

Special schools were more likely than regular schools to emphasize some kinds of vocational training for their students in the deaf, visually impaired, and multiply handicapped categories. The vast majority of students in those categories attended schools that provided job or career counseling and training in job-related behaviors (Table 3-21). Training in specific job skills was somewhat less common, but still available to more than 6 of 10 students. In each of the disability categories, students in special schools were significantly more likely to have access to job counseling than were students in regular schools (p<.05). Among those with visual or multiple impairments, job readiness training also was more common in special schools (p<.01), as was job skills training for deaf students (p<.01).

Among students with sensory impairments, special school students were significantly less likely than regular school students to have job development, job placement, or postemployment services available to them (p.<01). Perhaps this was because special school students had greater access to school-sponsored work experience programs (p<.01), resulting in less need to develop, place, or support special school students in other jobs. In contrast, in emphasizing placement rather than training, perhaps regular schools assumed that their relatively higher-functioning students required less preparation for jobs and could succeed at employment if the schools assisted them in finding jobs.

Students in both regular and special schools who were not assigned to a grade level generally had less access to vocational programs than did those at a grade level. This lower emphasis on vocational services for students not assigned to a grade level may be due to the greater severity of disability generally evidenced by such students relative to others.

Course Taking

The greater availability in special schools of some vocational training services is reflected in the extent to which students took vocational education in their most recent school year. Table 3-22 indicates that, among students with sensory impairments, special school students were significantly more likely than regular school students to have taken vocational education courses in general, and occupationally oriented vocational courses in particular, in their most recent school year. For example, 47% of students with visual impairments who attended regular schools took vocational courses in their most recent school year, compared with 69% of such students attending special schools (p<.001). However, a sizable percentage of students were reported to have taken no vocational courses in their most recent school year, e.g., 19% to 30%

of deaf students and more than half of those with multiple handicaps. Nonvocational students tended to be those in the lower grades and those who were not assigned to a grade level.

In contrast to the vocational emphasis of special schools, regular school students in the deaf and multiply handicapped categories were significantly more likely than special school students to have taken academic courses (p<.001), perhaps reflecting again the generally milder levels of disability among regular school students.

Table 3-22

COURSES TAKEN IN THEIR MOST RECENT SCHOOL YEAR BY STUDENTS IN SELECTED DISABILITY CATEGORIES WHO ATTENDED REGULAR AND SPECIAL SCHOOLS

	Disability Category and School Enrollment:					
	Deaf		Visually Impaired		Multiply Handicapped	
Program Characteristics	Regular School	Special School	Regular School	Special School	Regular School	Special School
Percentage of students who took in their most recent school year:						
Academic courses[†]						
At all	98.3	87.2	94.5	87.3	62.4	46.8
	(1.4)	(2.6)	(2.3)	(4.0)	(5.8)	(5.8)
In regular education classes	57.7	10.2	82.4	9.5	20.6	.5
	(5.3)	(2.3)	(3.9)	(3.6)	(4.8)	(.6)
Vocational education courses[§]						
At all	69.2	80.9	47.4	69.4	40.3	48.2
	(4.6)	(3.0)	(4.3)	(4.9)	(5.5)	(4.6)
In regular education classes	54.9	12.6	52.5	7.4	23.5	1.1
	(5.3)	(2.5)	(5.1)	(3.2)	(5.1)	(1.0)
Occupationally oriented vocational education courses[#]						
At all	59.4	74.3	41.7	54.9	23.3	31.2
	(4.9)	(3.3)	(4.2)	(5.3)	(4.8)	(4.3)
In regular education classes	49.7	12.2	46.1	6.8	18.8	1.1
	(5.4)	(2.5)	(5.1)	(3.0)	(4.7)	(1.0)
Nonacademic courses[††]						
At all	89.9	73.0	89.8	96.2	82.8	92.5
	(3.2)	(3.4)	(3.1)	(2.3)	(4.5)	(2.5)
In regular education classes	70.2	6.2	72.9	8.0	22.9	.5
	(4.9)	(1.8)	(4.6)	(3.3)	(5.0)	(.7)
N	237	455	307	258	191	321

Note: Standard errors are in parentheses.

[†] Academic courses include English/language arts, mathematics, science, social science, and foreign language.

[§] Vocational courses include home economics, courses in prevocational skills, and occupationally specific courses.

[#] Occupationally oriented courses are vocational courses providing training in a specific labor market area (e.g., auto repair, food service); prevocational skills training and home economics courses are not included as occupationally specific.

[††] Nonacademics include physical education, music, art, drivers' education, etc.

Source: Parent interviews and students' school records from their most recent year in secondary school.

Although the vast majority of special school students took classes with other students with disabilities, a small percentage of students attending special schools took regular education classes. Such opportunities for integration in regular education classes may be available through cooperative programs between special and regular schools or such facilities as area vocational centers. More than 1 in 10 special school students in the deaf category (13%) and 7% of special school students in the visually impaired category took vocational courses in a regular education placement.

Support Services Provided Students by Their Schools

Students with disabilities were provided a variety of support services to help them make the most of their instructional programs. Because of their apparently more severe impairments, we would expect that special school students would require—and be provided more often—a greater variety of support services. The data presented in Table 3-23 support this expectation for students with hearing or visual impairments. Personal counseling, occupational therapy, and physical therapy/mobility training all were provided significantly more often to special school

Table 3-23

SERVICES RECEIVED FROM THE SCHOOL BY STUDENTS IN SELECTED DISABILITY CATEGORIES WHO ATTENDED REGULAR AND SPECIAL SCHOOLS

	Disability Category and School Enrollment:					
	Deaf		Visually Impaired		Multiply Handicapped	
Services Received	Regular School	Special School	Regular School	Special School	Regular School	Special School
Percentage of students in school in 1986-87 who were reported to have received from their school in that year:						
Help from a tutor/reader/interpreter	55.6 (4.8)	41.7 (3.6)	25.4 (3.7)	23.8 (4.4)	11.2 (3.5)	13.7 (3.1)
Speech/communication therapy	58.7 (4.8)	58.6 (3.6)	6.2 (2.0)	22.1 (4.3)	63.4 (5.4)	55.9 (4.5)
Personal counseling/therapy	18.1 (3.7)	34.5 (3.5)	8.7 (2.4)	33.3 (4.7)	20.4 (4.5)	31.9 (4.2)
Occupational therapy/life skills training	29.3 (4.4)	47.5 (3.6)	23.7 (3.6)	55.4 (5.1)	52.1 (5.5)	64.8 (4.3)
Physical therapy/mobility training	1.9 (1.3)	13.3 (2.5)	8.4 (2.4)	40.8 (5.1)	30.0 (5.1)	41.0 (4.4)
N	290	511	429	346	248	390
Average number of these services received from/through school in 1986-87 school year	2.0 (.12)	2.4 (.11)	.8 (.08)	2.0 (.14)	2.0 (.14)	2.4 (.11)
N	239	419	382	300	219	335

Note: Standard errors are in parentheses.

Source: Parent interviews and students' school records from their most recent school year.

students than to regular school students in those categories (p<.001). Speech/communication therapy was provided significantly more often to visually impaired special school students than to their regular school counterparts (22% vs. 6%; p<.001). Fewer differences in receipt of support services were apparent for students in the multiply handicapped category; only personal counseling and occupational therapy were provided significantly more often to special school students. An interpreter for deaf students was the only service provided more often to regular school than to special school students (56% vs. 42%; p<.05), possibly compensating for the fact that many regular school staff and students did not use sign language. As a general measure of service intensity, the average number of services received was significantly higher for students in special schools, regardless of disability category.

Summary

In this section, we have examined the school experiences of students in three disability categories—deaf, visually impaired, and multiply handicapped—comparing those who attended special schools with those enrolled in regular schools. From this discussion, we have a picture of special schools generally serving students who were more severely disabled and economically disadvantaged than regular school students in the selected disability categories. This section has described the varying educational programs of those students along the following dimensions:

- *School context.* Special schools featured significantly fewer students who were much more likely to represent the full age span of elementary and secondary grades than did regular schools. Sensory impaired students attending special schools were more likely to have a greater percentage of their fellow students come from low-income households than similar students who attended regular schools.
- *Access to programs.* Compared with regular schools serving secondary deaf, visually impaired, and multiply handicapped students, special schools emphasized vocational and life skills training over academics. They were much more likely to make such programs available, to make them available in earlier grades, and to include a greater emphasis on community-based experiences in them.
- *Course taking.* Special school students in the selected categories were more likely than regular school students to participate in vocational courses and less likely to have taken academic courses in their most recent school year.
- *Support services provided.* Perhaps reflecting their generally more severe disabilities, special school students were more likely than regular school students with similar kinds of disabilities to have received personal counseling or therapy, occupational therapy or life skills training, or physical therapy/mobility training from their schools in the most recent school year. Students in special schools averaged a greater number of such services per student than did regular school students.

To what extent did these kinds of instructional programs and support services compensate for students' disabilities? How well did special school students and their regular school counterparts do in school? This question is addressed in the following chapter.

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4 SECONDARY SCHOOL PERFORMANCE

by Mary Wagner

In this chapter, we examine several aspects of school performance for secondary school students with disabilities. We focus on school performance because of its powerful effects on the paths students take as they leave school and make the transition into adulthood. Students who succeed in school and those who do not have markedly different life prospects, leading the William T. Grant Foundation (1988) to conclude that "this nation may face a future not divided along lines of race or geography, but rather of education." To illustrate, the Foundation estimated that young adults in the general population, ages 18 to 23, with basic academic skills in the bottom fifth of the distribution relative to their peers in the top half, are:

- 8.8 times more likely to leave school without a diploma.
- 8.6 times more likely to have a child out of wedlock.
- 5.4 times more likely to receive some form of public assistance.
- 5 times more likely to be at poverty level in income and not in school of any type.
- 3.6 times more likely to be neither working nor in school nor taking care of a child.
- 2.2 times more likely to have been arrested in the previous year.

Poor school performers suffer these undesirable outcomes more often than better performers in part because of their failure to acquire the skills and knowledge measured by various indicators of achievement. Students who perform well in school acquire the skills necessary to understand their environment, establish goals, and set a course to achieve them. They have the basic skills that are desired by employers and that are the foundation for further education. Many poor school performers, on the other hand, may fail to acquire necessary skills, the lack of which presents serious obstacles to later efforts in the employment or postsecondary education arena.

Whether students succeed in acquiring skills may reflect differences in innate ability to learn. It also may reflect differences in the educational programs to which higher and lower achievers are exposed. Students who achieve early in school are more likely than poor achievers to be exposed later to school programs that challenge them to even greater learning. Poor achievers may be channeled into less challenging educational programs, limiting their opportunity for later skill acquisition. Thus, "the poor get poorer" in educational terms, a phenomenon documented for disabled and nondisabled students alike (Alexander, Cook, and McDill, 1978; Lee and Bryk, 1988; Oakes, 1985; Osborne and Schulte, 1989).

High and low achievers may have different transition experiences, not just because of differences in skills and abilities, but also because of differences in the images they develop of themselves as learners. Messages of academic success received from grades, teacher evaluations, and test scores help to develop a student's self-image as a competent person capable of analyzing problems and developing effective solutions. Messages of failure reinforce feelings that students are victims of circumstance and unable to bring about the positive outcomes they might desire. Together, poor skills and recurring messages of inadequacy or failure combine to set many students on a path toward adulthood that is fraught with serious obstacles.

Policymakers, educators, researchers, and parents who have a particular interest in students with disabilities also have a particular interest in issues of student performance. Many students with disabilities are in special education because they were unable to achieve to their potential or to school expectations in the regular education environment. Achieving below grade level (as measured by standardized tests) or failing courses (as measured by course grades) are two common catalysts for referral to special education. With the individualized educational programs provided through special education, some students are able to overcome early performance deficits. Others continue to struggle academically.

Despite the salience of issues of school performance to those in the special education community, to date very little information has been available on how well students with disabilities do in school. The NLTS presents one of the first opportunities to examine school performance for a large number of secondary school students representing the variety of disabilities and instructional programs that constitute special education.

School performance is one of the several student outcomes specified in the NLTS conceptual framework described in Chapter 1 (Figure 1-1, Box D). Although school performance is considered a single area of outcomes, it has been measured in many ways (e.g., standardized test scores, course grades, and rates of grade retention). However, each measure captures only one aspect of what is a complex, multidimensional concept, and each measure has both its substantive and methodological limitations. To obtain a broader and more systematic view of school performance than would result from considering any single measure, here we describe four aspects of school performance for secondary students with disabilities*:

- Engagement in the educational process, as measured by students' school attendance.
- Grade performance, as measured by grade average and receipt of failing grades.
- Acquisition of basic skills or competencies, as measured by passage of minimum competency tests.
- Retention at grade level.

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* A longer-range indicator of school performance, school completion, is considered in Chapter 5.

Using these measures,* we address the following questions for secondary students with disabilities:

- How well were students in different disability categories and at different grade levels doing in school?
- What were the relationships among different aspects of school performance?
- Who was having trouble in school? What were the individual and household characteristics that distinguished students with varying levels of school performance?
- What were schools doing that seemed to help? What characteristics of the schools or their policies or programs were related to varying levels of school performance?

Levels of School Performance

School Attendance

A minimum expectation for student performance is that students attend school; without participation in the educational process, its benefits are difficult to attain. However, students with some kinds of disabilities experience involuntary absences due to illnesses associated with their disabilities. Others miss classes or whole days of school for treatments made necessary by their disabilities.

In addition to this involuntary absenteeism, some students also elect to skip school, perhaps because of a disaffection or alienation from school. For example, in a national sample of high school seniors in 1980, one in five students reported being absent from school for more than five days in the school year for reasons other than illness; a similar percentage reported being late to school more than five days in the year (Peng, Fetters, and Kolstad, 1981).

The lack of a social bond between students and their schools has been suggested in recent research to be at the heart of alienation and voluntary absenteeism from school (Finn, 1989). A social bond is apparent when a student "is attached to adults and peers, committed to the norms of the school, involved in school activities, and has belief in the legitimacy and efficacy of the institution" (Wehlage et al., 1989). This perspective assumes that when social bonds are missing, students will fail to attend school or, when present at school, fail to give full attention or effort to the educational process.

Social bonds often are difficult to establish for students in secondary school. Large student enrollments, the demands of multiple classes taught by teachers with varied expectations for students, and the complexities of adolescent peer relationships make secondary schools difficult environments within which to establish the commitment and involvement that social bonds entail.

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* The primary data source for this chapter was individual students' school record abstracts; data refer to the student's most recent year in secondary school. This was the 1986-87 school year for students still in school at the time of the 1987 interview or those who had left school in the previous year. For students who had been out of secondary school more than 1 year at the time of the interview, their most recent school year was 1985-86.

Bonding may be even more difficult for students with disabilities than for the general student population. The learning problems experienced by students with learning disabilities or mental retardation, for example, may result in few experiences of academic success in school; maintaining commitment to educational goals in the face of repeated failures or perceived incompetence is difficult. The limitations of orthopedic or sensory impairments may set students with those disabilities apart from their peers socially, making involvement in many school activities more difficult. Students experiencing these kinds of obstacles to social bonding may fail to develop the attachment to school that results in regular attendance and the sustained effort needed for academic success.

High absenteeism, whether voluntary or involuntary, presents significant challenges to meeting academic standards. It has been identified as perhaps the single strongest predictor of academic failure and dropout decisions for students with disabilities (Thornton et al., 1987; Donahoe and Zigmond, 1990; Schellenberg, Frye, and Tomsic, 1988).

The NLTS collected data from students' school records on the number of days they were absent from school in their most recent school year.* On average, students with disabilities missed 15 days of school during the year. As shown in Table 4-1, about 1 in 3 students (30%) missed 5 days of school or fewer; about 3 of 4 students missed 20 days of school or fewer. Another 12% of students missed between 21 and 30 days, and 13% missed more than 30 days of school. These levels of absenteeism, if unexcused, exceed the levels in many school districts beyond which students fail to receive credit for attending class and/or are considered dropouts.

Absenteeism for students with disabilities was somewhat higher than for the general student population. For 1980 high school sophomores over their 4 years of high school, 37% were absent five days or fewer per year (Jones et al., 1983), compared with 30% of students with disabilities having relatively low absenteeism. Conversely, a smaller percentage of students from the general population were absent more than 20 days (17%) than was true of students with disabilities (24%).

Table 4-1 demonstrates that absenteeism was more prevalent for students in some disability categories. For example, the percentage of students missing more than 30 days of school ranged from 4% to 18% across the disability categories. The percentage of youth missing more than 30 days of school was significantly higher for youth classified as emotionally disturbed (18%) than for youth in many other disability categories (e.g., 7% for youth with speech impairments; p<.001).

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* Data on the number of days absent were collected on the school record abstract form, but were missing on 15% of forms. No significant differences were found between those for whom data were provided and those for whom data were missing on the following factors: functional ability scale scores, IQ scores, GPA, and attendance at a special school. There was however, a significantly greater absence of data for students in middle school grade levels (7 or 8) than higher grades (23% missing vs. 11% to 13% missing; p<.01). Because younger students had somewhat lower absenteeism, the underrepresentation of these students would slightly inflate overall absenteeism levels, particularly for disability categories that had relatively more students at those grade levels (e.g., speech impaired; see Table 2-20).

Table 4-1

SCHOOL ABSENTEEISM AMONG SECONDARY STUDENTS WITH DISABILITIES

		Primary Disability Category:										
School Absenteeism	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage of students absent from school in their most recent school year:												
5 days or fewer	30.0 (1.5)	29.0 (2.4)	23.6 (2.8)	37.8 (3.8)	31.9 (2.2)	45.6 (4.0)	36.9 (4.0)	46.6 (3.2)	32.2 (3.5)	30.1 (4.3)	37.4 (4.3)	72.7 (7.3)
6 to 10 days	21.6 (1.3)	22.4 (2.2)	19.6 (2.6)	20.4 (3.2)	20.9 (1.9)	20.7 (3.2)	22.7 (3.5)	23.0 (2.7)	21.6 (3.1)	15.6 (3.4)	17.3 (3.4)	9.0 (4.5)
11 to 20 days	24.1 (1.4)	25.0 (2.2)	25.2 (2.9)	26.3 (3.4)	21.8 (1.9)	19.2 (3.1)	24.8 (3.6)	20.4 (2.6)	23.9 (3.2)	27.6 (4.2)	16.7 (3.3)	9.4 (4.8)
21 to 30 days	11.6 (1.0)	11.4 (1.6)	13.8 (2.3)	8.1 (2.1)	12.3 (1.5)	8.2 (2.2)	7.6 (2.2)	6.1 (1.5)	7.8 (2.0)	11.2 (3.0)	11.4 (2.8)	4.3 (3.3)
More than 30 days	12.7 (1.1)	12.2 (1.7)	17.7 (2.5)	7.4 (2.0)	13.1 (1.6)	6.2 (1.9)	8.0 (2.3)	4.0 (1.3)	14.4 (2.6)	15.5 (3.4)	17.3 (3.4)	4.6 (3.4)
N	5,200	770	447	332	807	560	472	627	419	252	448	66
Average days absent from school in student's most recent school year	14.8 (.5)	14.7 (.8)	17.7 (1.1)	11.8 (1.0)	14.8 (.7)	10.3 (.9)	11.9 (1.1)	9.0 (.6)	15.1 (1.2)	16.2 (1.5)	15.0 (1.4)	6.3 (2.0)
N	5,179	766	444	329	805	559	470	626	418	250	446	66

Note: Standard errors are in parentheses.

Source: Students' school records from their most recent school year.

Absenteeism results from different causes. For example, although the percentage of students with more than 30 days absent was similar for youth in the emotionally disturbed and other health impaired categories, it is plausible that those with health impairments were absent due to illness related to their disability more often than were students classified as emotionally disturbed, whose disability may not have so directly contributed to absences related to illness.

In addition to differences in absenteeism related to disability, Table 4-2 indicates that absences also varied by grade level. Both the average number of days absent and the percentage of youth with high absenteeism peaked for students in 9th grade. For example, the percentage of 9th-graders who were absent more than 30 days (16%) was significantly higher than the percentage among 12th-graders (8%; p<.05). Students not assigned to a grade level were not significantly different in levels of absenteeism from students who were assigned to specific grade levels.

This grade-level pattern of absenteeism was different from absenteeism in the general student population. Students in the general population demonstrated somewhat lower absenteeism in 9th and 10th grades than in 11th and 12th grades (Jones et al., 1983). For example, 13% of 9th-graders in the general population were absent more than 20 days, compared with 17% of 10th-graders, 19% of 11th-graders, and 18% of 12th-graders.

Table 4-2

VARIATIONS IN ABSENTEEISM BY GRADE LEVEL

Student Grade Level	Average Number of Days Absent in Most Recent School Year	Percentage Absent More Than 30 Days in Most Recent School Year	N
Grade 7 or 8	13.7 (1.3)	9.2 (3.0)	502
Grade 9	16.7 (1.3)	16.4 (2.9)	801
Grade 10	15.4 (1.1)	14.6 (2.6)	882
Grade 11	15.3 (1.1)	12.8 (2.5)	886
Grade 12	13.1 (.8)	8.1 (1.7)	1,211
Not assigned to grade level	13.5 (1.2)	12.2 (2.6)	897

Note: Standard errors are in parentheses.

Source: Students' school records from their most recent school year.

The pattern of lower absenteeism in upper grades among students with disabilities may relate to the grade levels at which students dropped out of school. High voluntary absenteeism frequently ends in students' dropping out of school entirely. NLTS data reveal, for example, that dropouts averaged 26 days absent in their last year in school, compared with 14 days for school persisters. Further, we found that 57% of dropouts left school in 10th grade or earlier. Hence, among students with disabilities, many of those with high absenteeism failed to return to school for 11th or 12th grades, lowering the average rate of absenteeism among students in those grades who remained in school.

Grade Performance

By the time students reach secondary school, most have had considerable experience with course grades and "report cards," the summary evaluation of students' academic performance during the school year. Course grades provide students with often-powerful messages about not only their academic status but their more basic abilities, their standing in their classes, and their value as students. These messages often are more personal than ratings provided by standardized test scores, for example, because they reflect the assessments made by specific teachers with whom students have individual relationships. Over the course of an entire school career, grade performance helps shape students' images of themselves as learners and of their competence to perform academic tasks (Bloom, 1976; Finn, 1989). Eckstrom et al. (1986) have found that course grades more powerfully distinguish school persisters from dropouts than do general measures of achievement.

The NLTS has analyzed the grades received by students with disabilities during their most recent school year, as reported in their school records. In this section, we report two aspects of grade performance: grade point average[*] and the percentage of students who received a failing grade in at least one course during the school year.

Although course grades are often-used indicators of school performance, their limitations for research purposes are well known. Grade inflation makes comparisons of grades across time suspect. Variations in grading standards across schools and districts mean that aggregated grade data often obscure more differences than they reveal. In special education, a further difficulty in understanding school performance from course grades results from different grading standards being applied in regular education and special education classes in many schools. Finally, analyzing grades for special education students is difficult because not all of them receive grades in their courses. Understanding which students receive grades and which do not is an important first step in interpreting findings regarding students' course grades.

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[*] Grade point average is calculated on a 4-point scale, with a grade of A assigned 4 points, B assigned 3 points, C assigned 2 points, D assigned 1 point, and failed courses assigned no value. Points are summed and divided by the total number of courses, including those failed.

Students With Disabilities Who Did Not Receive Course Grades

NLTS data reveal that 11% of students with disabilities did not receive grades in any courses in their most recent year in secondary school. Students who received grades were graded in an average of 6 courses. The number ranged from 4 to 6 courses for youth in different disability categories, except those with multiple handicaps, who received grades in an average of 3 courses.

As shown in Table 4-3, the receipt of grades was strongly related to the nature and severity of students' disabilities. For example, only 5% of students categorized as learning disabled did

Table 4-3

STUDENTS WITH DISABILITIES WHO DID NOT RECEIVE COURSE GRADES IN THEIR MOST RECENT SCHOOL YEAR

	Students Who Did Not Receive Grades		
Student Characteristics	%	S.E.	N
Total	10.8	1.0	5,591
Primary disability category			
Learning disabled	4.8	1.1	821
Emotionally disturbed	8.7	1.8	502
Speech impaired	4.3	1.5	379
Mentally retarded	24.0	2.0	846
Visually impaired	10.4	2.5	548
Hard of hearing	1.5	1.0	513
Deaf	11.1	2.0	683
Orthopedically impaired	14.9	2.7	458
Other health impaired	9.6	2.6	284
Multiply handicapped	56.1	4.0	491
Deaf/blind	78.1	6.8	66
Functional mental skills†			
High (15 to 16)	3.6	1.0	1,962
Medium (9 to 14)	11.5	1.9	1,724
Low (4 to 8)	54.9	5.3	548
Student assigned to grade level			
Yes	5.1	.8	4,619
No	65.7	3.6	941
Student attended:			
Special school	54.5	3.9	1,529
Regular school	6.9	.8	4,052

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† Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: Grade data are from students' school records. Functional abilities are from parent interviews.

not receive any grades, whereas 24% of those classified as mentally retarded did not receive any grades. More than half of students with low functional mental skills did not receive grades (55%), compared with only 4% of students with high functional mental skills. Almost two-thirds of students who were not assigned to a specific grade level and 54% of those who attended special schools did not receive grades in any courses.

Hence, when we analyze course grades as measures of school performance, we are "creaming" the special education student population by eliminating from the analysis students with more severe disabilities and lower functional skills. Because the students who did receive grades were the more capable special education students, we would expect analyses of grades to reveal generally higher performance and a greater similarity in grade performance between special education and regular education students than would be the case if all special education students were considered.

Grade Point Average

Table 4-4 reports the grade point average (GPA) for the most recent school year for students with disabilities who received grades.* The mean GPA for all students who received grades was 2.0 on a 4-point scale, indicating graded students with disabilities were average students, with overall grades equivalent to a C. For students overall, 6% had GPAs of 3.25 or higher (mostly As), while 17% had GPAs lower than 1.25 (mostly Ds).

Grades earned by students with disabilities were lower than the grade averages of the general student population. For their full 4 years of high school, the 1980 sophomore cohort of High School and Beyond in 1982 had a mean GPA of 2.6, or a B-minus average (NCES, 1984). The 1980 senior cohort from that study had a high school career GPA of 2.8; seniors in 1972 had a comparable GPA (Fetters, Brown, and Owings, 1984). However, these GPAs are for students who stayed in school through their senior year; we would expect GPAs to be lower if grades for students who dropped out were included.

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* Readers are cautioned that the grade data presented here may paint a somewhat rosier picture of grade performance than students actually achieved; GPAs may actually have been marginally lower and failure rates marginally higher than those reported here. There is reason to believe that the grades abstracted from students' records may slightly overestimate grade performance for some students. In the case of a student taking a single course for two semesters and receiving two different grades, data abstractors recruited in schools attended by students in the sample were instructed to record the grade received in the most recent semester. However, when transcripts were obtained for a subsample of students and compared with grades reported by data abstractors on the record abstract forms, 34% of the 157 cases reviewed showed discrepancies between transcript grades and record abstract grades. The majority of these cases involved abstractors reporting the higher of two grades received for two-semester courses, rather than the most recent grade. Generally only one course per student was involved in a grade discrepancy and the grade change was virtually always only 1 grade point (e.g., a B reported as the higher grade when a C was the most recent grade). The overestimation of GPA for a student with 7 graded courses would be .14 (e.g., the difference between a GPA of 3.0 and a GPA of 2.86). If this overestimation affected one-third of the full sample, as it did of the cases validated, it would result in a GPA overestimation of .05 for the full sample. However, because the subsample used for this comparison was small and included students from only four disability groups, it is unknown to what extent this tendency to record the more favorable grade rather than the most recent grade pervades the grade data analyzed here for the full sample. In a handful of cases, failed courses were not included on the record abstract form because students received no credit for them.

Table 4-4

GRADE POINT AVERAGES OF SECONDARY STUDENTS WITH DISABILITIES

		Primary Disability Category:									
Student Grade Performance	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired	Other Health Impaired	Multiply Handicapped
Mean grade point average (GPA) for:											
All graded classes	2.0 (.03)	1.9 (.04)	1.7 (.06)	2.1 (.07)	2.1 (.05)	2.5 (.06)	2.3 (.07)	2.6 (.04)	2.5 (.07)	2.2 (.09)	2.3 (.12)
Percentage of students with GPA for all graded classes of:											
3.25 or higher	5.7 (.8)	4.0 (1.0)	3.2 (1.2)	10.8 (2.3)	9.2 (1.5)	17.3 (3.2)	9.0 (2.3)	15.5 (2.3)	14.8 (2.9)	10.9 (3.0)	9.2 (3.4)
2.75 to 3.24	11.9 (1.1)	10.8 (1.6)	8.4 (1.8)	16.9 (2.8)	13.1 (1.8)	19.3 (3.4)	26.7 (3.6)	31.1 (3.0)	23.5 (3.4)	18.9 (3.7)	20.1 (4.7)
2.25 to 2.74	22.1 (1.4)	22.9 (2.2)	19.3 (2.6)	17.3 (2.9)	21.3 (2.2)	27.0 (3.8)	20.9 (3.3)	30.3 (3.0)	28.1 (3.6)	20.8 (3.8)	23.6 (5.0)
1.75 to 2.24	24.8 (1.5)	25.1 (2.2)	22.3 (2.7)	21.4 (3.1)	26.6 (2.3)	24.1 (3.6)	22.5 (3.4)	15.5 (2.3)	18.7 (3.2)	22.7 (4.0)	28.8 (5.3)
1.25 to 1.74	18.3 (1.3)	20.7 (2.1)	20.1 (2.6)	15.6 (2.7)	13.2 (1.8)	7.2 (2.2)	11.0 (2.5)	4.6 (1.4)	9.2 (2.3)	11.6 (3.0)	9.3 (3.4)
Less than 1.25	17.1 (1.3)	16.4 (1.9)	26.6 (2.9)	17.9 (2.9)	16.5 (2.0)	5.1 (1.9)	9.9 (2.4)	2.9 (1.1)	5.7 (1.9)	15.1 (3.4)	9.0 (3.4)
N	4,728	785	451	365	618	501	505	622	396	253	218

Note: Standard errors are in parentheses.

Source: Students' school records for their most recent school year.

Despite the apparently lower GPA for students with disabilities as a whole, grades earned by students in some disability categories were equal to the means reported for the general student population. For example, students in the visually and orthopedically impaired and deaf categories had GPAs of 2.5 and 2.6. These grades were significantly above those of students in the learning disabled category, for example (1.9; $p<.001$), who more heavily influenced the average for students as a whole. Grades for students classified as emotionally disturbed were significantly lower than for any other disability category ($p<.01$). The mean GPA of 1.7 and the percentage of students with grades of mostly Ds or below (27%) indicate that students in this category were having the greatest difficulty in achieving academically.

The distribution of GPA by grade level presented in Table 4-5 is consistent with the findings reported earlier for student absenteeism. Absenteeism was highest in grade 9, and the average GPA was lower than at other grade levels. Grade 9, when many students were making the transition from junior high or middle school to high school, was the most problematic grade level for students. The elimination of poor performers from the student body as students dropped out at 9th or 10th grades also may have contributed to the GPA upswing in the later grades. However, the GPA for seniors with disabilities still was not as high as that reported for the general student population.

Table 4-5

VARIATIONS IN GRADE POINT AVERAGES BY GRADE LEVEL AND TYPE OF CLASS

Grade Level/Class Type	GPA	S.E.	N
Student was in:			
Grade 7 or 8	2.0	.08	516
Grade 9	1.7	.07	833
Grade 10	1.9	.06	911
Grade 11	2.0	.06	925
Grade 12	2.3	.05	1,244
Not assigned to a grade level	2.2	.11	274
GPA for all graded:			
Regular education classes	1.9	.04	3,497
Special education classes	2.2	.04	3,578
Academic classes[†]	1.8	.03	4,595
Vocational classes[§]	2.0	.04	3,737
Nonacademic classes[#]	2.2	.04	3,843

[†] Academic classes include reading, English, language arts, mathematics, science, social science/history, and foreign language.

[§] Vocational education includes courses in home economics, prevocational skills, and occupationally specific training, such as auto shop and typing.

[#] Nonacademic classes include art, music, physical education, and electives such as drivers' education.

Another contributor to improved overall GPAs in upper grades may have been the nature of courses taken. Table 4-5 indicates significantly lower grades earned for academic courses than for vocational or nonacademic courses (1.8 vs. 2.0 and 2.2; p<.001). This pattern of significantly lower GPAs for academic courses was consistent for students in each disability category, except for those classified as mentally retarded, for whom the GPA for academic classes (2.0) was not significantly lower than that for vocational or nonacademic courses (2.0 and 2.1). Chapter 3 documented the reduced emphasis on academic courses in the upper grades, paralleling an increase in the hours devoted to vocational classes in grades 11 and 12. Juniors or seniors would have had higher overall GPAs by taking fewer academic classes, in which they appeared to do less well and more vocational classes, with their higher grade performance.

Chapter 3 also revealed that students in upper grades spent significantly less of their instructional time in regular education than did students in earlier grades. Table 4-5 indicates that the mean GPA for special education courses was significantly higher than the mean GPA for regular education courses (2.2 vs. 1.9; p<.001). This pattern of lower grades for regular education courses held for students in all disability groups except for those with visual impairments; their GPA of 2.7 was the same for regular and special education courses. Therefore, students in upper grades would be expected to have higher grade point averages than younger students because of a greater preponderance of special education classes in their course schedules.

Students not assigned to a grade level who received course grades had GPAs as high as students at particular grade levels. This again may reflect the greater emphasis on vocational and nonacademic courses and on special education placements for students in unassigned programs.

Although students performed better, in terms of grades, in special education than in regular education classes, a comparison of grade point averages for the two kinds of classes is complicated by the use of different grading standards. NLTS data indicate that two-thirds of students with disabilities attended schools in which different grading standards were applied to special education classes than to regular education classes. Hence, grades cannot be interpreted as comparable against a fixed standard. However, they are indicative of the messages students received about their competence to do the learning tasks expected of them. Students in special education classes were more likely to be judged competent to meet the expectations of those classes than were students with disabilities in regular education classes.

Students Who Failed Courses

The overall grade point average analyzed thus far is a good summary of students' general grade performance. However, Table 4-4 indicated that the mean GPA masks a broad distribution of grades, with a larger percentage of students at the low end of the grade distribution than at the upper end. Secondary students may have had a C average or even distribution than at the upper end. Secondary students may have had a C average or even higher and still have failed one or more courses, with a resulting loss of credits needed for graduation. The ultimate result of credit loss is nonpromotion (if students stay in school at all). However, many more students fail courses than reach the more extreme point of nonpromotion.

NLTS data indicate that one-third of students with disabilities failed a course in their most recent school year, as shown in Table 4-6. Some course failure was experienced by students with disabilities at all but the highest levels of the GPA scale. Virtually all students (97%) with a GPA less than 1.25 received at least one failing grade, as did 58% of students with a GPA between 1.25 and 1.74. Even among students with C averages (1.75 to 2.24), one in four had failed at least one course. Course failure was much less common for students with GPAs of 2.25 or higher.

Variations in course failure by disability category are depicted in Table 4-7. Consistent with findings regarding the overall GPA, students in the emotionally disturbed category had a considerably higher course failure rate (44%) than did students in other categories (p<.05). Course failure was significantly less common for students classified as multiply handicapped (7%), deaf (8%), or visually or orthopedically impaired (17% and 15%) than for students with learning disabilities (34%), for example (p<.001).

Table 4-6

RELATIONSHIP BETWEEN COURSE FAILURE AND GPA AMONG STUDENTS WITH DISABILITIES

	Students Failed One or More Courses		
Grade Point Average	%	S.E.	N
Total	33.0	1.5	4,728
Student GPA was:			
<1.25	97.0	1.4	568
1.25 to 1.74	57.5	4.0	588
1.75 to 2.24	24.3	3.0	1,002
2.25 to 2.74	8.8	2.1	1,142
2.75 to 3.24	.3	.5	892
≥3.25	.0	—	536

Source: Students' school records for their most recent school year.

Table 4-7

SECONDARY STUDENTS WITH DISABILITIES WHO RECEIVED FAILING GRADES IN THEIR MOST RECENT SCHOOL YEAR

		Primary Disability Category:										
Student Grade Performance	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired	Other Health Impaired	Multiply Handicapped	Deaf/-Blind
Percentage of students receiving grades who failed one or more courses in their most recent school year	31.1 (1.4)	34.5 (2.4)	43.9 (3.1)	35.1 (3.5)	21.7 (1.9)	17.1 (3.0)	21.7 (3.3)	8.4 (1.7)	15.1 (2.7)	25.7 (3.9)	6.9 (2.0)	4.0 (3.1)
N	5,683	817	504	377	870	562	514	685	469	285	529	71
Of students who had graded regular education classes, percentage failing one or more of them	32.8 (1.7)	33.3 (2.5)	44.6 (3.5)	36.8 (3.8)	27.3 (2.6)	15.9 (3.8)	23.0 (3.6)	11.1 (3.2)	16.9 (3.8)	28.6 (4.7)	14.9 (6.8)	—
N	3,392	752	384	336	513	313	440	271	291	205	83	4
Of students who had graded special education classes, percentage failing one or more of them	12.7 (1.1)	12.3 (1.8)	25.9 (3.0)	10.2 (3.2)	10.5 (1.4)	10.7 (3.0)	4.6 (1.9)	5.0 (.4)	5.0 (1.9)	10.3 (3.3)	4.5 (1.7)	4.3 (3.4)
N	4,592	668	413	881	835	378	379	614	376	192	484	65

Note: Standard errors are in parentheses.

Source: Students' school records from their most recent school year.

Also consistent with GPA data, students were significantly more likely to have failed a regular education than a special education course. Almost one-third of students who took graded regular education classes failed one or more of those classes, whereas 13% of students taking special education classes received a failing grade for one of them (p<.001). Significantly higher failure rates for regular education than for special education classes were apparent for all disability categories. This may help explain the relatively low failure rate for students in the multiply handicapped category; these students were enrolled primarily in special education courses and, hence, were less likely to fail those courses than if regular education courses had been more prominent in their course schedules.

Table 4-8 depicts the failure rates for various types of courses by students' grade levels. Although the course failure rate for 9th-graders was somewhat higher than for students at other grade levels, the differences were not significant, unlike other measures of school performance.

Table 4-8

VARIATIONS IN COURSE FAILURE RATES BY GRADE LEVEL

		Percentage of Students Taking the Type of Course Who Failed:		
Grade Level		Any Course	Regular Education Course	Special Education Course
Student was in:				
Grade 7 or 8		33.9	35.0	12.1
		(4.7)	(5.1)	(3.6)
	N	551	405	436
Grade 9		42.6	41.2	21.8
		(3.8)	(4.1)	(3.5)
	N	865	640	673
Grade 10		39.1	39.4	14.3
		(3.5)	(3.8)	(2.8)
	N	954	729	734
Grade 11		33.7	31.7	12.6
		(3.4)	(3.6)	(2.6)
	N	960	729	758
Grade 12		19.0	18.3	5.6
		(2.4)	(2.6)	(1.6)
	N	1,311	956	1,002
Not assigned to a grade level		5.4	11.6	3.8
		(1.6)	(6.7)	(1.5)
	N	1,042	108	938

Note: Standard errors are in parentheses.

Source: Students' school records from their most recent school year.

Significantly lower failure rates are apparent for 12th-graders, regardless of course type. For example, more than one-third of 11th-graders (34%) failed one or more courses, compared with 19% of 12th-graders ($p<.001$). Students not assigned to a grade level were significantly less likely than students at any grade level to have received failing grades. Again, this may reflect the preponderance of special education courses taken by unassigned students or the fact that many poorer-performing students had dropped out of school before 12th grade.

Acquisition of Minimum Competencies

Part of the growing concern among policymakers, educators, and the public regarding the quality of American education is the perception that many students proceed through the educational system, even to graduation from high school, and do not acquire the basic skills required of workers in our increasingly complex labor markets. This concern, reflected in the school reform movement, has fostered increased use of minimum competency testing. Many states have identified a core of knowledge and skills students are expected to achieve at particular grade levels and have developed tests to be administered at those grade levels to assess whether students achieve those competencies. States vary widely in the content of tests, grading standards for tests, grade levels at which tests are administered, and consequences for test failure. Among the common uses of minimum competency tests (MCTs) is to determine whether students have acquired the skills that qualify them for high school graduation. This use has raised considerable concern in the special education community that MCTs will act as a barrier to graduation for students with some kinds of disabilities. Recent research suggests that such a barrier may exist. For example, the rate at which deaf students graduated with a regular diploma was 57% in non-MCT states but only 33% in MCT states (Allen, Rawlings, and Schildroth, 1989).

This section describes the MCT experiences of secondary students with disabilities. Because such tests are not administered to all students, we first describe the extent to which students attended schools in which MCTs were given at the secondary level. Then, recognizing that some disabilities prevent students from taking MCTs, we examine the extent to which students who attended schools in which MCTs normally were given at the secondary level were exempted from the test requirement. Finally, for students with disabilities who took MCTs, we discuss rates of full passing, partial passing, and failure. Information regarding students' experiences with MCTs was abstracted from their school records for their most recent secondary school year.

Students Not Subject to Minimum Competency Testing

Overall, 43% of students with disabilities attended schools in which minimum competency tests were not given at the secondary level (Table 4-9). There were significant differences by disability category in the percentage of students who were not subject to MCTs. For example, the percentage of students in the other health impaired category who were not subject to testing (30%) was significantly lower than the percentage of students classified as learning disabled

(44%) or emotionally disturbed (45%; p<.01). These variations apparently were not related to severity of disability; there were no significant differences in rates of testing by levels of functional ability, whether students attended special schools, or whether they were assigned to a grade level. Differences in the extent to which students in different disability categories were subject to MCTs may reflect in part differences between categories in the grade-level distributions of students within them. Table 4-9 indicates that students in middle school grades (7 and 8; 67%) were significantly more likely than students at senior high grade levels not to be subject to MCTs (34% to 46%; p<.001). Chapter 2 demonstrated that the other health impaired and speech impaired categories, for example, had larger percentages of students in middle school (16% and 21%) than the deaf, mentally retarded, or multiply handicapped categories (10% and 12%). The speech and other health impaired categories also had higher percentages of students who were not subject to MCTs.

Table 4-9

STUDENTS WITH DISABILITIES WHO WERE NOT SUBJECT TO MCTS

	Students Not Subject to MCTs		
Student Characteristics	%	S.E.	N
Total	43.0	1.6	5,592
Primary disability category			
Learning disabled	44.2	2.6	795
Emotionally disturbed	45.3	3.1	488
Speech impaired	35.9	3.7	344
Mentally retarded	41.5	2.2	872
Visually impaired	37.2	3.9	557
Hard of hearing	39.7	3.9	516
Deaf	3.1	3.1	682
Orthopedically impaired	39.7	3.7	475
Other health impaired	29.5	4.2	267
Multiply handicapped	41.8	2.6	527
Deaf/blind	64.0	7.8	69
Student was in:			
Grade 7 or 8	66.9	4.8	508
Grade 9	45.5	3.8	864
Grade 10	37.6	3.6	909
Grade 11	34.4	3.5	954
Grade 12	36.8	2.9	1,337
Not assigned to a grade level	46.7	3.7	983

Source: Students' school records from their most recent school year.

Students Subject to MCTs But Exempted from Testing

Even when students with disabilities attended secondary schools in which minimum competency testing was done, not all were tested. Table 4-10 indicates that 38% of students who attended secondary schools that administered MCTs were exempted from the test requirement. Whether students were exempted appears to relate strongly to the severity of their disability. Exemptions were most common for students in the mentally retarded (73%), and multiply handicapped categories (83%) and least common for students who were speech

Table 4-10

STUDENTS WITH DISABILITIES WHO WERE SUBJECT TO MCTS BUT EXEMPTED FROM THE TEST REQUIREMENT

Student Characteristics	Students Not Subject to MCTs Who Were Exempted from the Test		
	%	S.E.	N
Total[†]	38.0	2.0	3,325
Primary disability category			
Learning disabled	25.0	3.0	445
Emotionally disturbed	22.2	3.6	273
Speech impaired	12.6	3.1	237
Mentally retarded	72.8	2.6	510
Visually impaired	21.9	3.9	366
Hard of hearing	20.1	3.9	328
Deaf	29.0	3.9	357
Orthopedically impaired	42.0	4.3	303
Other health impaired	23.6	4.6	190
Multiply handicapped	82.7	4.0	288
Students' functional abilities were:			
High (15 to 16)	25.8	2.9	1,220
Medium (9 to 14)	40.0	3.9	1,014
Low (4 to 8)	89.0	4.3	335
Student attended:			
Special school	78.5	3.9	861
Regular school	34.2	2.1	2,462
Student was in:			
Grade 7 or 8	43.4	8.8	188
Grade 9	37.6	5.3	471
Grade 10	32.1	4.4	612
Grade 11	29.4	4.1	665
Grade 12	30.1	3.5	876
Unassigned program	87.3	3.4	487

[†] There were too few deaf/blind students subject to tests to report separately; they are included in the total.

Source: Students' school records from their most recent school year.

impaired (13%; p<.001). The majority of students not assigned to a grade level (87%) were exempted from the MCT requirement in their schools, as were students with low functional skills (89%) and students attending special schools (78%). Hence, in interpreting data on MCT test passing, we must recognize that primarily higher-functioning students with disabilities were tested.

Minimum Competency Test Performance

Because some students were not subject to MCTs and some students were exempted from them, only about one-third of secondary students with disabilities (35%) have MCT results to analyze, as shown in Table 4-11. Only for the health and speech impaired categories did more than half of students take MCTs, and among students classified as mentally retarded, multiply handicapped, or deaf/blind, fewer than 1 in 6 students took MCTs. The rate of taking MCTs was significantly higher for students in 11th and 12th grades (46% and 44%) than for students in their middle school years (19%; p<.001).

Among students with disabilities who took MCTs, about 45% passed all parts of their exams, while another 32% passed part of their exams. Almost 1 student in 4 who took MCTs failed the entire exam. The complete passing rate was highest for students in the visually impaired category (72%) and lowest for students classified as mentally retarded (21%; p<.001). Students in the mentally retarded category had the highest failure rate of students taking MCTs.

The rate of passing the entire exam increased by grade level. For example, about 1 in 4 9th-graders (27%) passed the entire exam, compared with 53% of 11th-graders (p<.001) and 70% of 12th-graders (p<.05). These passage rates are consistent with those reported by Brooks and Pittman (1990) for seniors in Louisiana; 69% passed the language portion of that state's MCT, and 55% of students passed the mathematics portion.

Higher passage rates in upper grades again may reflect the dropping out of poorer-performing students, leaving a higher proportion of better performers in the upper grade levels. It may also reflect multiple examinations. In some states, students can repeat MCTs until they pass; 12th-graders would have had the greatest number of opportunities to take the exam, possibly improving their chances of passage.

Retention at Grade Level

A fundamental measure of school performance is meeting the expectations of performance for a given grade level and being promoted to the next grade at the end of the year. Students who do not meet grade-level expectations repeat a grade, with the hope that further exposure to the required materials will help them master the skills and knowledge they failed to acquire on the first attempt. The long-range intent of nonpromotion is to ward off later failure by helping students master prerequisite skills and knowledge at the expected grade levels. Through a policy of nonpromotion, "learning deficiencies would never be allowed to accumulate," thereby

Table 4-11

PERFORMANCE ON MCTS BY STUDENTS WITH DISABILITIES

	Students Taking MCTs		Percentage of Students Taking MCTs Who Passed:			
Student Characteristics	%	N	All of the Test	Part of the Test	None of the Test	N
Total	35.3	5,592	44.7	31.9	23.4	1,908
	(1.5)		(2.8)	(2.7)	(2.4)	
Primary disability category						
Learning disabled	41.8	795	48.8	31.0	20.1	311
	(2.5)		(4.1)	(3.8)	(3.3)	
Emotionally disturbed	42.6	488	36.6	40.8	22.7	189
	(3.1)		(5.0)	(5.1)	(4.3)	
Speech impaired	56.0	344	50.7	31.8	17.5	185
	(3.9)		(5.3)	(5.0)	(4.1)	
Mentally retarded	15.9	872	21.2	28.0	50.9	130
	(1.6)		(4.7)	(5.2)	(5.8)	
Visually impaired	46.1	557	72.2	20.6	7.2	267
	(4.0)		(5.0)	(4.5)	(2.9)	
Hard of hearing	48.2	516	52.1	37.1	10.8	257
	(4.0)		(5.4)	(5.2)	(3.3)	
Deaf	37.2	682	62.0	28.8	9.2	239
	(3.0)		(5.0)	(4.6)	(3.0)	
Orthopedically impaired	35.0	475	60.3	32.1	7.6	153
	(3.6)		(5.9)	(5.7)	(3.2)	
Other health impaired	53.8	267	41.1	38.3	20.6	122
	(4.6)		(6.6)	(6.5)	(5.4)	
Multiply handicapped	10.1	527	42.5	29.5	28.0	51
	(2.5)		(10.9)	(10.1)	(9.9)	
Deaf/blind	7.2	69	—	—	—	4
	(4.2)					
Student was in:						
Grade 7 or 8	18.7	508	48.7	28.5	22.8	85
	(4.0)		(14.2)	(12.8)	(11.9)	
Grade 9	34.0	864	27.2	35.0	37.8	272
	(3.6)		(6.6)	(7.1)	(7.2)	
Grade 10	42.3	909	25.2	44.3	30.5	419
	(3.7)		(5.2)	(5.9)	(5.9)	
Grade 11	46.3	954	53.2	30.5	16.3	483
	(3.7)		(5.6)	(5.2)	(4.2)	
Grade 12	44.2	1,337	70.1	16.8	13.1	597
	(3.0)		(4.5)	(3.7)	(3.3)	
Not assigned to grade level	6.8	983	3.0	66.4	30.6	51
	(1.9)		(6.3)	(17.3)	(16.9)	

Note: Standard errors are in parentheses.

Source: Students' school records from their most recent school year.

reducing later school failures and the dropout rate (Center for Policy Research in Education, 1990).

Stricter policies of nonpromotion have been incorporated into the school reform efforts of many states and are apparently strongly supported by the public. A 1986 Gallup poll indicated that 72% of the American public favored stricter promotion standards (Gallup, 1989). Yet, recent research seriously questions the efficacy of nonpromotion for most students (Shephard and Smith, 1989; Marion and Coladarci, 1990). Holmes (1989), in reviewing 63 controlled studies of nonpromotion, found virtually no evidence for long-term academic benefits to students who were retained in grade when compared with children of equal achievement who were promoted. Others argue that nonpromotion that simply provides "more of the same" by exposing students to the same material in the same fashion that led to failure in the first place is ineffective, but that nonpromotion with active remedial help can be effective in reducing future failures (Hoffman and Rachal, 1988).

Whether or not nonpromotion results in academic benefits, it appears to have strong emotional costs for students. Bachman, in a longitudinal study of 10th-grade boys, found that "perhaps the most dramatic—and traumatic—indication of early failure in school occurs when a youngster is held back a grade.... When a boy does not get promoted to the next grade along with the rest of his class, everyone knows he has flunked. He will never catch up with his class again" (Bachman, Green, and Wirtanan, 1976, p. 53). Byrnes (1989) reports similar findings: "Retained children perceive retention as a punishment and a stigma, not as a positive event designed to help them" (p.130). Results of a survey of parents of retained children (Shephard and Smith, 1989) indicate that 60% of children experienced negative effects of retention, including teasing by other children and a sense of personal failure. When children were asked to rate the amount of stress associated with various life events (Yamamoto, 1980), only the prospects of going blind or losing a parent were rated by children as more stressful than being retained in grade.

The long-range prospects for those who experience nonpromotion are not good. Some have estimated that students who have repeated a grade are between 4 and 5 times more likely to drop out of school than are students who did not repeat grades (Bachman et al., 1971; Raber 1990). The effect of grade retention on dropout rates apparently is independent of student achievement (Grissom and Shephard, 1989), meaning that for two students of the same ability, the one who had been retained in grade is significantly more likely than his peer to drop out of school.

Despite questions of the efficacy of nonpromotion and evidence as to its emotional costs, nonpromotion is quite common. Data from 13 states and the District of Columbia (Shephard and Smith, 1989) indicate that between 4% and 9% of students in those states were retained in grade in the 1985-86 school year, leading to an estimate of an accumulated nonpromotion rate of 50% over a school career. This rate is consistent with findings from studies of several urban school districts. Gottfredson (1988) reports that 53% of 9th-graders were older than the typical age-for-grade, indicating that they had been retained earlier; cumulative grade retention rates were consistently over 40% across several grade cohorts in New York. However, retention rates in the 50% range are considerably higher than that reported by Bachman et al. (1971), who found that 24% of a national sample of 10th-grade boys had repeated at least one grade by the time they began their sophomore year.

Although the NLTS did not measure directly whether students had experienced retention in earlier grade levels, we found that 76% of students with disabilities were older than the typical age for the grade they were in during their most recent school year. Although this phenomenon may be explained partially by students' starting school later, it also may result from retention at earlier grade levels. This presumption is supported by research that suggests that students with learning disabilities experience grade retention in elementary school at a rate higher than nondisabled students (McKinney and Feagans, 1984). Osborne and Schulte (1989), for example, found for a sample of students with learning disabilities in one school that 62% had been retained at least once in their first 5 years of school and that 15% had been retained twice.

The NLTS measured the extent of grade retention for students with disabilities during their most recent year in secondary school. The rate of retention was calculated for all students who were assigned to a grade level and who remained in secondary school. Students not assigned to a grade level were eliminated from this analysis because they generally do not advance from grade to grade in the same manner as other students. Students who dropped out, withdrew, or moved during a school year also were excluded from the analysis because it is unknown whether they would have been promoted had they remained at the school. The retention rate, therefore, is the percentage of students assigned to a grade level and still in school who were retained in grade, rather than being promoted to the next grade, at the end of the school year.

Table 4-12 indicates a single-year retention rate of 9% for students with disabilities. The retention rate was almost twice as high for students classified as emotionally disturbed (16%) and was more than 10% for students in the mentally retarded, other health impaired, and multiply handicapped categories. There was a higher retention rate for students in 9th grade than for those in the middle school years or in 11th grade, consistent with findings of previous analyses that high absenteeism and poor grade performance were more prevalent in 9th grade. Among the handful of 12th-graders who remained in school past the end of their 12th-grade year, the fact that virtually all were not promoted explained their continuation in school.

Relationships Among Dimensions of School Performance

The descriptive analyses of absenteeism, course grades, minimum competency acquisition, and grade retention suggest interrelationships among these dimensions of school performance. The fact that absenteeism and retention were higher and grades lower in 9th grade, for example, suggests that students at that grade level were having difficulty with the several dimensions of performance; they were not independent of each other. These interrelationships

Table 4-12

RATES OF GRADE RETENTION OF STUDENTS WITH DISABILITIES

	Students Remaining in School and Retained at the End of Their Most Recent School Year		
Student Characteristics	%	S.E.	N
Total sample	8.6	1.2	2,956
Primary disability category			
Learning disabled	6.5	1.6	444
Emotionally disturbed	16.1	3.2	245
Speech impaired	8.7	2.6	233
Mentally retarded	11.6	2.2	370
Visually impaired	5.6	2.5	341
Hard of hearing	3.9	2.0	328
Deaf	5.9	2.0	385
Orthopedically impaired	8.8	2.9	275
Other health impaired	11.1	3.6	172
Multiply handicapped	14.9	5.1	159
Student grade level			
7 or 8	2.8	1.8	469
9	8.6	2.5	711
10	7.8	2.2	785
11	4.3	1.7	772
12	93.8	8.2	46

Source: Students' school records for their most recent school year.

suggest an elaboration of the student outcomes portion of the NLTS conceptual framework that was presented in Chapter 1, Figure 1-1. This elaboration is depicted in Figure 4-1.

Figure 4-1 concentrates our attention on Box D of the conceptual framework, which deals with student outcomes. School performance is one aspect of student outcomes, and includes absenteeism, acquisition of knowledge and skills as indicated by grades and MCT performance, and retention. Figure 4-1 depicts the hypothesized relationships among these measures of school performance. It suggests that in a given year, poor attendance contributes to students' failure to acquire the skills and knowledge that are the focus of classes in that year, resulting in poor grades and MCT performance. Having failed both to meet attendance requirements and to acquire the skills and knowledge expected for that school year, students are retained at grade level. This static picture of interrelationships in a given year masks the probable circular nature of the relationships over time; i.e., over time, poor attendance leads to poor performance, which discourages students from attending school, resulting in even higher absenteeism, and so on. However, until longitudinal data on school performance are available, we are limited to an analysis of a static model. In this section, we present NLTS data that illustrate the relationships depicted in Figure 4-1.

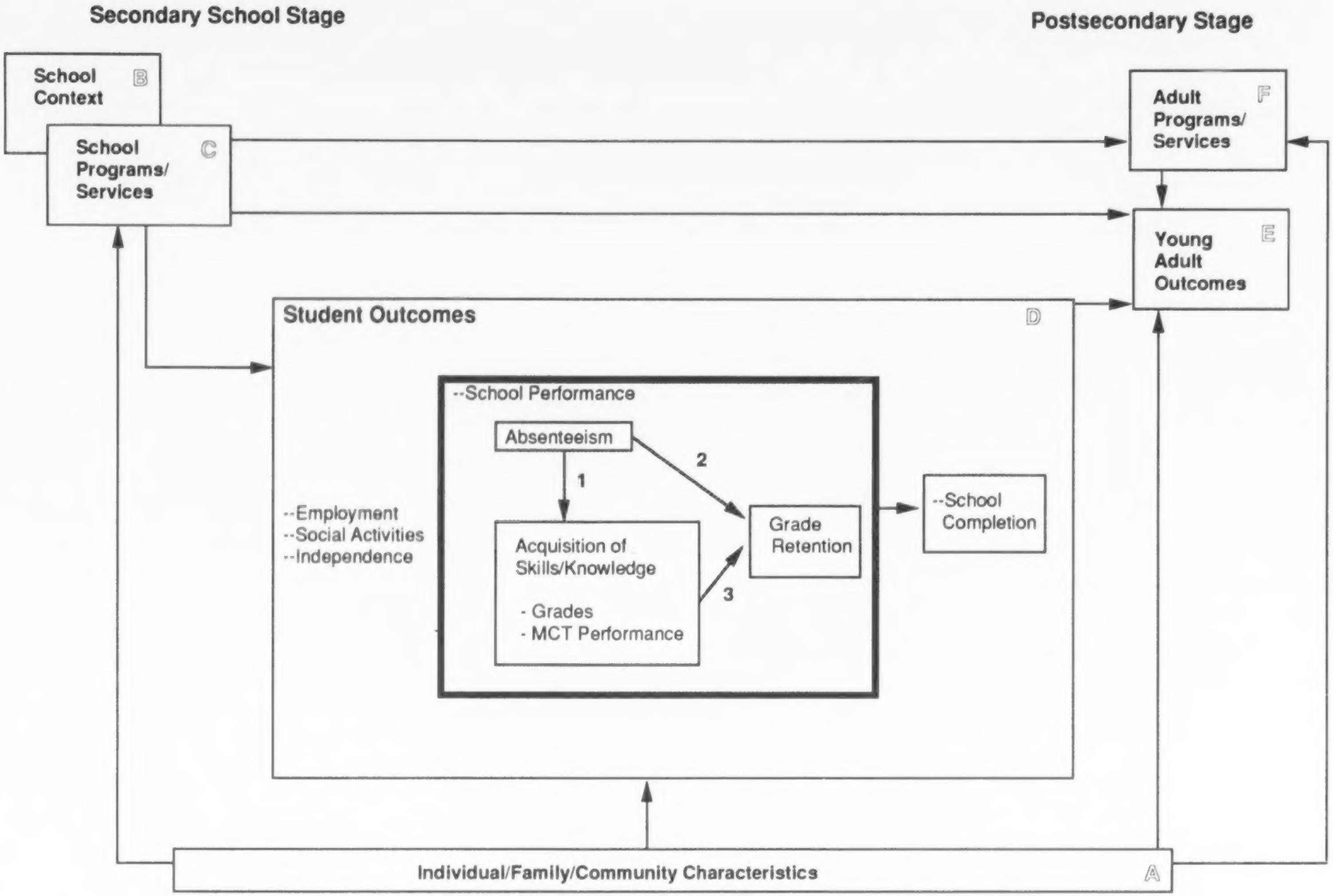
Secondary School Stage
Postsecondary Stage
School Context
B
School Programs/ Services
C
Adult Programs/ Services
F
Young Adult Outcomes
E
Student Outcomes
D
--Employment
--Social Activities
--Independence
--School Performance
Absenteeism
1
2
3
Acquisition of Skills/Knowledge
- Grades
- MCT Performance
Grade Retention
--School Completion
Individual/Family/Community Characteristics
A

FIGURE 4-1 INTERRELATIONSHIPS AMONG ASPECTS OF SCHOOL PERFORMANCE

Table 4-13 illustrates the relationships of absenteeism to skill/knowledge acquisition and nonpromotion that are suggested by arrows 1 and 2 in Figure 4-1. For each of these measures of school performance, significantly higher absenteeism was noted for poor performers. For example, students with a grade point average less than C-minus averaged 21 days absent in their most recent school year, compared with 12 days for C students and 9 days for students with a B average or better (p<.001). Significant differences in absenteeism also were observed for students depending on whether they failed a course and on their MCT performance. Similarly, students who remained in school and were promoted to the next grade level at the end of the year averaged 13 days absent during that school year, compared with 22 days for students who were not promoted (p<.001).

Arrow 3 in Figure 4-1 is illustrated in Table 4-14, which depicts a significantly higher nonpromotion rate for poor performers on the selected measures of skill/knowledge acquisition. For example, 19% of students with a GPA of less than C-minus were not promoted, compared with 8% of students whose GPA was B-minus or better (p<.01). Differences in retention rates based on whether students failed courses and on their MCT performance are in the expected direction but are not statistically significant.

These data emphasize the powerful direct relationships that exist among the measures of school performance we have examined. Students who were absent from school were more

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Table 4-13

RELATIONSHIP OF ABSENTEEISM TO OTHER MEASURES OF SCHOOL PERFORMANCE FOR STUDENTS WITH DISABILITIES

School Performance Measures	Average Days Absent	S.E.	N
Student GPA was:			
2.75 or higher	8.9	.7	1,299
2.25 to 2.74	10.8	.8	1,056
1.75 to 2.24	12.5	.9	908
Less than 1.75	21.4	1.0	1,073
Student failed one or more courses			
No	12.0	.5	3,996
Yes	21.0	1.1	1,101
Student took MCT and:			
Passed entirely	10.8	.8	895
Passed partially	15.6	1.4	517
Failed	18.3	1.9	281
Student remained in school and was:			
Promoted	12.6	.6	2,378
Retained at grade level	22.1	2.7	225

Source: Students' school records for their most recent school year.

Table 4-14

RELATIONSHIP OF RETENTION TO STUDENT GRADES AND MCT PERFORMANCE

Grades/MCT Performance	Students Who Were Retained		
	%	S.E.	N
GPA of:			
<1.75	19.2	3.1	667
1.75-2.24	7.6	2.4	641
2.25-2.74	3.1	1.6	698
2.75 or higher	8.2	2.6	860
Students failed a course			
Yes	18.2	3.0	751
No	12.0	1.6	2,720
Students who took a minimum competency test and:			
Passed the entire test	4.5	2.6	509
Passed part of the test	10.0	3.8	415
Failed the test	15.3	5.6	189

Source: Students' school records for their most recent school year.

likely to do poorly in school and, as poor performers, were more likely to be retained at grade level. Despite their strong associations, however, a large majority of variation in each measure of school performance remains unexplained. For example, the simple correlation between absenteeism and GPA is .23; although statistically significant, the majority of variation in GPA is attributable to factors other than absenteeism.

What other factors contribute to school performance for students with disabilities? This question is crucial to understanding what kinds of students are particularly at risk of school failure. The question also is important for identifying possible points of intervention or tools for intervention to help in increasing students' chances of school success. The next sections present further analyses that explore questions of which students were having trouble in school, and what school factors were related to better performance.

Who Had Trouble in School?

Figure 4-1 suggested the relationships among several measures of school performance for students with disabilities. It also depicted this constellation of school performance indicators within a more comprehensive framework of factors hypothesized to relate to school performance. Figure 4-2 elaborates on the factors we will focus on here: the individual, household, and community characteristics of students, highlighted in Box A, and activities of students involving employment and social activities (these constitute interesting outcomes in

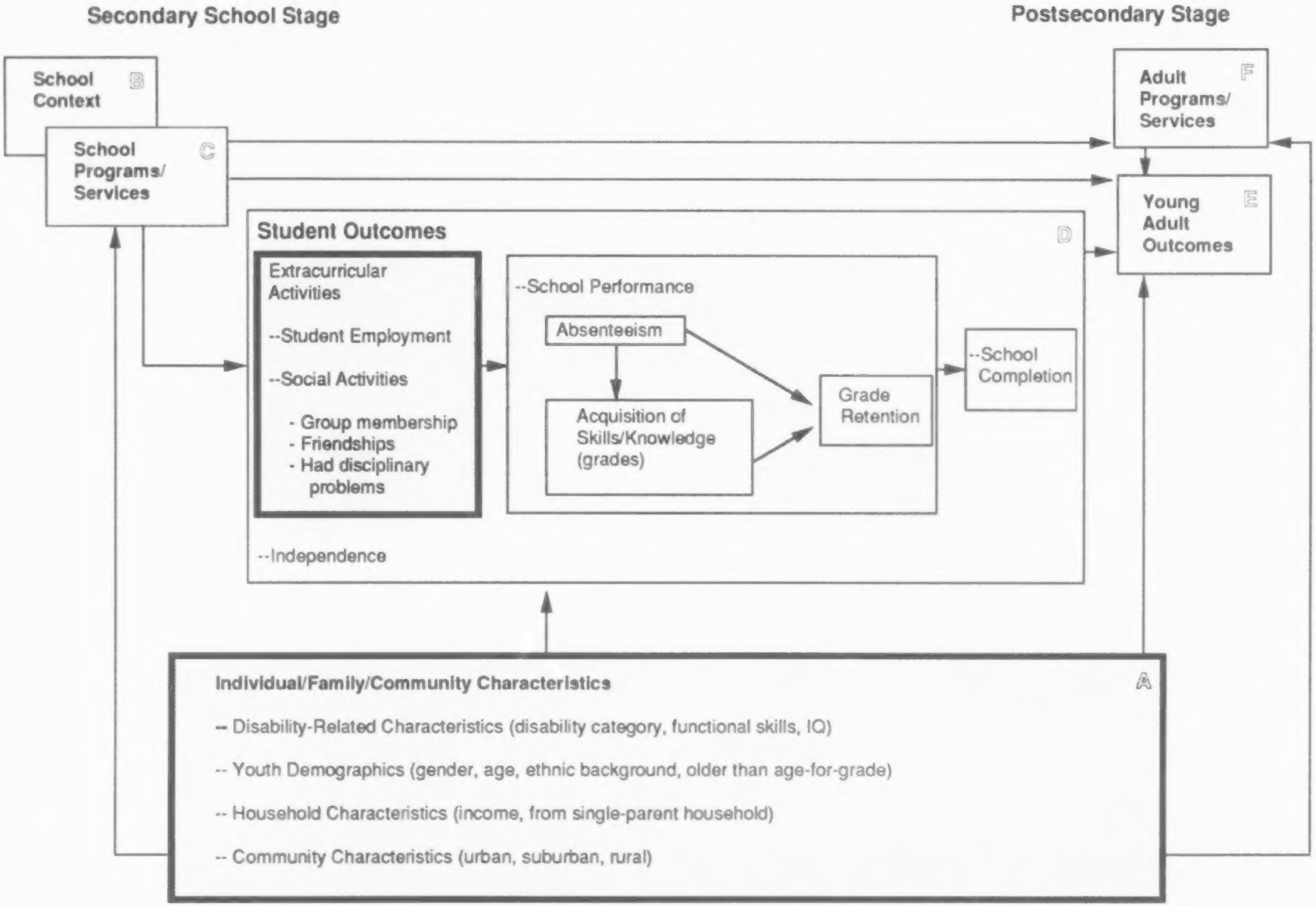
Secondary School Stage
Postsecondary Stage
School Context B
School Programs/ Services C
Adult Programs/ Services F
Young Adult Outcomes E
Student Outcomes D
Extracurricular Activities
--Student Employment
--Social Activities
- Group membership
- Friendships
- Had disciplinary problems
--School Performance
Absenteeism
Acquisition of Skills/Knowledge (grades)
Grade Retention
--School Completion
--Independence
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, older than age-for-grade)
-- Household Characteristics (income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 4-2 THE RELATIONSHIP OF STUDENT, HOUSEHOLD, AND COMMUNITY FACTORS TO SCHOOL PERFORMANCE

themselves, and are the focus of Chapters 6 and 8). By examining the relationship between these factors and school performance, we will further our understanding of who had trouble in school.

Our first look at relationships of these factors to school performance will focus on each factor individually. However, because many of the factors are interrelated, multivariate analysis is necessary to disentangle the independent relationships of each factor to school performance. Our discussion of individual relationships will be followed by presentation of multivariate analysis findings.

We focus on three measures of students' school performance: student absenteeism (number of days absent in the most recent school year), a dichotomous variable indicating whether the student received a failing grade in the most recent school year, and a dichotomous variable indicating whether a student who remained in school was retained at grade level at the end of the school year.*

Box A in Figure 4-2 suggests the relationships between the core set of disability and demographic characteristics described in Chapter 1 and school performance. These core variables include: the student's disability, functional abilities, and IQ; his/her gender, ethnic background, and age; household income and whether the household was headed by a single parent; and whether the student attended school in an urban, suburban, or rural area. The relationships between school performance measures and these characteristics are presented in Table 4-15.

Disability Characteristics

Earlier tables in this chapter described the marked difference in school performance for youth in different disability categories. Differences related to functional abilities and IQ scores also are apparent:

- *Self-care abilities*. For youth in relevant disability categories, students with greater physical functioning would be expected to have lower absenteeism due to illness or treatment of physical disabilities and higher overall performance. Table 4-15 shows somewhat higher absenteeism for lower-functioning students, as expected, although the relationship falls just short of statistical significance. Contrary to expectations, however, higher-functioning youth were significantly more likely to have failed a course (10% for low-functioning students compared with 33% for high-functioning students; p<.001). No systematic differences in retention rates were apparent.
- *Functional mental skills*. One could expect that youth with greater ability to translate basic mental processes into everyday activities (e.g., counting, reading, telling time) would have better identification with school and, therefore, higher performance. The opposite relationship is demonstrated in Table 4-15. Compared with low-functioning students, high-functioning students had a significantly higher rate of receiving a

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* MCT performance is not included in these analyses as an indicator of performance because a large percentage of students did not take tests; the small sample size would limit our ability to identify significant relationships.

Table 4-15

VARIATIONS IN SCHOOL PERFORMANCE BY FUNCTIONAL ABILITIES

	Number of Days Absent			Students Failing One or More Courses			Students Retained at Grade Level		
Disability-Related Characteristics	Mean	S.E.	N	%	S.E.	N	%	S.E.	N
Self-care ability scale score:[†]									
Low (3 to 6)	19.2	2.7	208	10.5	6.5	104	15.5	11.3	69
Medium (7 to 10)	13.2	1.7	659	19.0	5.6	360	19.6	7.9	280
High (11 or 12)	14.6	.6	3,149	32.8	1.9	2,681	7.2	1.4	1,927
Functional mental skills ability scale score:[§]									
Low (4 to 8)	13.5	1.16	523	14.4	5.2	214	9.4	5.6	153
Medium (9 to 14)	14.5	1.0	1,614	29.2	3.0	1,187	8.3	2.3	969
High (15 or 16)	14.6	.8	1,806	34.5	2.5	1,691	7.5	1.8	1,115
IQ									
≤ 74	14.0	.8	1,468	24.0	2.4	1,038	8.5	2.2	644
75 to 90	14.9	.9	1,220	39.2	3.0	1,057	9.4	2.3	722
91 to 110	15.1	1.2	846	35.8	4.0	661	4.2	2.1	722
> 110	11.2	1.7	237	30.4	9.3	172	1.7	3.0	154

[†] Parents rated on a 4-point scale youths' abilities to dress themselves, feed themselves, and get around outside the home. Ratings were summed to create a scale ranging from 3 to 12.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: IQ scores and performance data are from students' school records. Other data are from parent interviews.

failing grade (34% vs. 14%; p<.001), perhaps because they were taking more academically challenging courses. There is no significant relationship to absenteeism or grade retention.

- *IQ*. Research has demonstrated that grades are a function in part of cognitive ability for nondisabled youth (Fetters, Brown, and Owings, 1984; Bachman, Green, and Wirtanan, 1971). NLTS data in Table 4-15 give mixed messages regarding the relationship between IQ and school performance for students with disabilities. Only in the case of grade retention did the relationship between IQ and school performance approach linearity and statistical significance; those with IQs of 90 or below were significantly more likely to have been retained at grade level than students with IQs above 110 (p<.05). Regarding absenteeism, only students at the highest IQ level (greater than 110; 11 days absent) showed significantly lower absenteeism than other students, who were quite similar in being absent 14 or 15 days (p<.05). Students with IQs below 75 were significantly less likely than students in the low-normal and normal ranges of intelligence to have received a failing grade (24% vs. 39% and 36%; p<.05), although no other significant differences were apparent based on IQ. (In multivariate analyses, IQ did not have a statistically significant, independent relationship to any of the three measures of school performance, as discussed in greater detail in later sections of this chapter.)

Individual, Household, and Community Characteristics

In addition to disability-related factors, a large body of literature suggests that student demographic characteristics are related to school performance. (See, for example, Rumberger, 1987; Fetters, Brown, and Owings, 1984; Jones et al., 1983; Bachman, 1970; Eckstrom et al., 1986; U.S. General Accounting Office, 1986; Pallas, Natriello, and McDill, 1988; Peng and Takai, 1987; Scott-Jones, 1984; U.S. Bureau of the Census, 1987). Various studies suggest that gender, ethnicity, and socioeconomic status, in some combination, relate to school performance. Research in special education regarding school performance and student characteristics is sparse, but some suggests that demographic factors may not be as salient in predicting some aspects of school performance for youth with disabilities as for other students (Thornton et al., 1987).

In Chapter 1, we hypothesized that students with characteristics associated with economic disadvantage (e.g., minority background, low income, urban residence) would have lower school performance. Earlier analyses in this chapter also lead us to expect lower performance for younger students. Relationships between school performance and gender also are examined; data are presented in Table 4-16. Significant differences in school performance are noted for the following characteristics:

- *Age*. Equivocal results regarding the relationship of age to school performance are evident in Table 4-16. Although students older than 20 were absent significantly less often than students who were 17 or 18, for example (13 days vs. 16 days; p<.05) and were significantly less likely to have failed a course (10% vs. 36%; p<.01), only this oldest category of students differs from others. And, in contrast to their generally better performance as measured by absenteeism and course failure, the oldest students were significantly more likely than younger students to have been retained at grade level (19% vs. 6%; p<.05). These findings probably result from the confounding effects of age and disability referred to earlier when we examined school performance of students at various grade levels. Multivariate analyses, presented later, show that only the likelihood of receiving a failing grade differed significantly by age, with younger students experiencing a greater probability of failure.

- *Socioeconomic status*. All measures associated with higher socioeconomic status were significantly related to lower absenteeism. White students were absent significantly less than blacks or Hispanics (13 days vs. 17 or 23 days; p<.01 and .001), as were those from high-income households, compared with lower-income households (12 days vs. 16 days; p<.001), those from two-parent compared with single-parent households (13 days vs. 18 days; p<.001), and those from suburban or rural areas compared with those from urban areas (13 or 14 days vs. 19 days; p<.001). Receipt of failing grades was less strongly related to SES in these bivariate analyses, the only significant differences being between white and black students (28% vs. 44%; p<.001) and urban students compared with rural students (40% vs. 30%; p<.05). Grade retention generally was unrelated to SES, with a significant difference evident only between white and black students (6% retained vs. 13%; p<.05).

No significant differences in school performance were noted between male and female students in these bivariate analyses.

Table 4-16

VARIATIONS IN SCHOOL PERFORMANCE BY INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS

	Number of Days Absent			Students Failing One or More Courses			Students Retained at Grade Level		
Characteristics	Mean	S.E.	N	%	S.E.	N	%	S.E.	N
Individual characteristics									
Youth's age in last school year									
≤ 16	13.8	.9	1,388	35.2	3.0	1,222	5.7	1.6	1,201
17 or 18	16.1	.8	1,981	36.5	2.5	1,614	8.1	1.8	1,288
19 or 20	14.9	.9	1,292	24.7	2.7	998	19.2	5.5	271
>20	12.8	1.3	493	9.5	3.1	228	—	—	23
Gender									
Male	15.1	.6	3,174	35.0	1.9	2,547	7.0	1.4	1,670
Female	14.6	.8	2,012	29.0	2.7	1,559	8.9	2.2	1,107
Ethnic background									
White	12.9	.6	2,786	28.2	2.0	2,192	5.7	1.4	1,546
Black	16.9	1.3	970	43.9	4.3	667	13.1	2.8	497
Hispanic	23.0	2.8	353	33.6	7.1	335	11.3	5.7	248
Other	12.5	2.2	114	19.8	9.7	109	8.9	5.7	71
Household characteristics									
Annual income									
≤ $25,000	16.0	.8	2,098	32.2	2.5	1,591	7.6	1.9	1,155
> $25,000	11.9	.7	1,622	29.7	2.9	1,334	5.2	1.8	974
Youth was from single-parent household									
Yes	18.3	1.2	1,313	34.6	3.4	993	12.3	3.2	714
No	12.8	.6	2,692	30.2	2.2	2,146	5.6	1.4	1,576
Community characteristics									
Attended school in area that was									
Urban	18.7	1.2	1,475	40.2	3.4	1,411	12.6	3.0	932
Suburban	13.4	.8	1,507	31.2	2.7	1,453	6.0	1.8	852
Rural	13.6	.7	1,022	30.2	2.5	1,023	6.5	1.8	517

Source: Individual and household characteristics are from parent interviews. Urbanicity data are from Quality Education Data. School performance data are from students' school records from their most recent school year.

Student Behaviors

A further category of student factors expected to relate to school performance involves students' behaviors in several domains. Much prior research has demonstrated that youth exhibit particular behaviors and have experiences that influence aspects of their school performance. (See, for example, Jay and Padilla, 1987; Bachman, Green, and Wirtanen, 1971; U.S. General Accounting Office, 1987; Wehlage and Rutter, 1986; Vito and Connell, 1988; Zigmond, 1987; Alpert and Dunham, 1986; Mahan and Johnson, 1983; Thornton et al., 1989). We have already demonstrated the interrelationships among measures of school performance themselves. In addition, we have posed the following hypotheses; findings related to them are presented in Table 4-17.

Table 4-17

VARIATIONS IN SCHOOL PERFORMANCE BY SELECTED STUDENT ACTIVITIES AND BEHAVIORS

	Number of Days Absent			Students Failing One or More Courses			Students Retained At Grade Level		
Behavioral Characteristics	Mean	S.E.	N	%	S.E.	N	%	S.E.	N
Days absent from school in the past year									
<10	NA	NA	NA	23.8	2.1	2,018	5.1	1.4	1,486
11 to 20	NA	NA	NA	35.3	3.3	888	7.0	2.4	586
21 to 30	NA	NA	NA	47.9	5.2	357	12.2	4.6	218
>30	NA	NA	NA	63.6	5.0	384	22.3	7.3	178
Youth failed one or more courses in the past year									
Yes	NA	NA	NA	NA	NA	NA	16.0	3.0	674
No	NA	NA	NA	NA	NA	NA	4.1	1.1	1,973
Youth belonged to school/ community group in the past year									
Yes	10.9	.7	1,609	24.2	2.6	1,743	7.4	2.0	1,155
No	17.0	.9	1,889	34.4	2.4	2,074	7.9	1.9	1,143
Youth saw friends									
Less than once per week	13.3	1.7	685	13.5	3.5	749	4.8	5.8	370
Once per week	14.0	1.8	492	29.6	5.1	543	6.2	3.5	323
2 or 3 days per week	12.6	1.0	857	26.6	3.4	955	5.5	2.2	596
4 or 5 days per week	13.8	1.5	487	33.9	4.8	525	7.2	3.3	336
6 or 7 days per week	16.9	1.2	898	38.8	3.7	963	8.1	2.6	628
Youth had disciplinary problems									
Yes	23.3	2.2	299	46.6	5.6	334	10.9	5.4	144
No	13.0	.6	3,219	27.4	1.9	3,508	7.1	1.4	2,157
Youth had a job in the past year									
Yes	13.7	.7	2,115	29.3	2.2	2,320	7.3	1.6	1,344
No	15.4	1.0	1,521	31.7	3.0	1,646	8.8	2.3	1,024
Student was older than typical age-for-grade									
Yes	15.5	.6	3,323	35.0	1.9	2,835	8.1	1.4	2,129
No	13.7	1.1	961	33.4	3.6	903	6.3	2.3	654

Source: Parent interviews and students' school records from their most recent school year.

- *Group membership.* As a proxy for social bonds, whether students belonged to a school or community group in the previous year is expected to reflect school bonding and be related to higher performance. Table 4-17 supports this expectation regarding absenteeism and course failure, but not grade retention. Group members were absent significantly less often than nonmembers (11 days vs. 17 days; p<.001) and were significant less likely to have received a failing grade (24% vs. 34%; p<.001).
- *Frequency of seeing friends*. Chapter 6 presents data suggesting that students who spent a significant amount of time seeing friends outside of school may have been doing so at the cost of more productive activities. We would expect students who spent more time socializing to have lower school achievement. Regarding receipt of failing grades, this expectation is confirmed. Those who saw friends outside of

school less than once per week were significantly less likely to receive a failing grade than students who saw friends more often (14% vs. 27% or more; p<.01), although there were no differences among youth who saw friends once a week or more often. Other measures of performance did not relate systematically or significantly with frequency of seeing friends in these bivariate analyses, although multivariate results demonstrated significant independent relationships to all measures when other factors were controlled in the analyses.

- *Having had disciplinary problems*. The NLTS has constructed a variable indicating whether the youth had had one or more of the following disciplinary problems: being suspended or expelled from school in the previous year, being fired from a job in the previous year, or ever being arrested. Data on being fired or arrested come from parent reports and those regarding being suspended or expelled from school come from school records or parent reports. Although this variable focuses largely on behaviors in the previous year only, it is a gross indicator of youth who have exhibited behaviors that suggest they have trouble fitting in or abiding by rules needed to maintain their social roles as students, workers, or members of society generally. Hence, it is expected to relate negatively to measures of school performance, an expectation confirmed for both absenteeism and course failure. Students with disciplinary problems were absent significantly more often (23 days vs. 13 days; p<.001) and were significantly more likely to have received a failing grade (47% vs. 27%; p<.01). Although the bivariate relationship with grade retention is nonsignificant in Table 4-17, multivariate analysis revealed a significant relationship to that measure as well when other factors were controlled.
- *Having a job*. Chapter 8 discusses the controversy regarding whether student employment enhances student skills and work-related behaviors or whether it poses a threat to school performance by competing with school for students' time and energy. We find no significant relationship between having had a job in the previous year and school performance in that year.
- *Being older than the typical age-for-grade*. As mentioned earlier in this chapter, more than three-fourths of secondary students with disabilities were older than the typical age of students at their grade level, suggesting that many of them had been retained in grade previously. Research on factors related to educational achievement by Bachman, Green, and Wirtanen (1971) suggests that "nothing succeeds like success and nothing predicts future success like past success." We expect youth who were older than age-for-grade to have poorer school performance. However, Table 4-17 reveals no significant relationship between being older than the typical age-for-grade and school performance, perhaps because other reasons than being retained in grade can explain being older than ones' peers, indicating substantial measurement error in this proxy indicator.

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Multivariate Analyses of Student Characteristics and Behaviors Related to School Performance*

Although many interesting relationships were discussed above, identifying the independent relationships between school performance and behavioral or household factors, for example, requires multivariate analyses to hold constant the interrelationships among the factors. Results of multivariate analyses are summarized here. First, we consider the relative power of the analyses to explain variations in school performance measures. Then, we discuss factors significantly related to school performance. Finally, we consider the cumulative effects of various factors on school performance.

A multivariate regression analysis of student absenteeism reveals that most of the variation in absenteeism remains unexplained by the factors in our analysis (r^2=.12). Only about one-fourth of the explained variation was attributable to disability-related factors (r^2=.03). Demographic factors and student behaviors add significantly to the explanatory power of the analysis.

Logistic regression analyses, conducted to explain variations in receipt of failing grades and of grade retention, do not yield a statistic that indicates the amount of variation explained by the analysis, which would be comparable to an r^2 for a regression analysis. However, the multivariate analyses of both school performance measures were significant at the .0001 level. The χ^2 for the analysis of course failure was significantly higher than for the analysis of grade retention (517 vs. 203; $p<.001$), indicating that the independent variables included in the analyses were better predictors of course failure than of grade retention.

Several factors were found to be significantly associated with school performance, as summarized in Table 4-18. This table presents the estimated change in the average number of days absent and the estimated percentage points change in the probabilities of course failure and grade retention that were associated with each variable in the models.

Table 4-18 confirms the strong relationships among the three measures of school performance. Students with higher absenteeism were significantly more likely to have received a failing grade, independent of other factors. For example, students who missed 18 days of school were estimated to be 8 percentage points more likely to have received a failing grade than students absent 8 days. Absenteeism also played a role in grade retention, independent of the powerful effects of course failure. Students absent 18 days were estimated to be 1 percentage point more likely to be retained in grade than students who missed 8 days,

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* Appendix D, Tables D4-1 and D4-2, present the unweighted means of all variables in the full sample of students and in each multivariate analysis and their correlations with school performance measures. However, because the analyses include a variable indicating whether the student was older than the typical age-for-grade, only students assigned to a grade level were included, resulting in the lower percentage of youth with severe impairments and a higher percentage of youth taking occupationally oriented vocational education, for example. Correlations did not differ significantly, however. Even so, conservatively, findings presented here should be interpreted as generalizing to students assigned to grade levels.

Table 4-18

ESTIMATED CHANGE IN SCHOOL PERFORMANCE ASSOCIATED WITH DISABILITY, INDIVIDUAL, HOUSEHOLD, COMMUNITY, AND BEHAVIORAL CHARACTERISTICS OF STUDENTS WITH DISABILITIES

	Estimated Change in:			
	Average Number of Days Absent	Rate of Course Failure (Percentage Points)	Rate of Grade Retention (Percentage Points)	For Increment
School performance				
Student absenteeism	NA	8.3***	1.4**	18 days vs. 8 days
Student failed one or more courses	NA	NA	18.5***	Yes vs. no
Disability characteristics				
Youth classified as:[†]				
Emotionally disturbed	-1.5	6.2	1.3	Emotionally disturbed vs. learning disabled
Speech impaired	-4.9***	.4	-1.5	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-1.4	-6.8	-.6	Mentally retarded vs. learning disabled
Deaf	-5.4***	-14.7***	-7.2*	Deaf vs. learning disabled
Hard of hearing	-4.6***	-8.3	-5.3	Hard of hearing vs. learning disabled
Visually impaired	-3.3**	-13.2**	1.8	Visually impaired vs. learning disabled
Orthopedically impaired	-2.0	-11.4*	-2.6	Orthopedically impaired vs. learning disabled
Other health impaired	1.4	-14.2**	-2.5	Other health impaired vs. learning disabled
Severely impaired (SMR, multiply handicapped)	-2.8*	-17.8**	-2.8	Severely impaired vs. learning disabled
Functional mental skills scale score	1.1*	2.0	2.7	High (16) vs. medium (12)
Self-care ability scale score	-2.5***	3.2	-4.3*	High (11) vs. medium (8)
IQ score	.7	-1.9	-1.5	100 vs. 80
Individual characteristics				
Age in most recent school year	.7	-7.9**	3.9	19 vs. 15
Youth was male	-.7	8.1***	-.9	Yes vs. no
Youth was minority	.5	6.0*	.1	Yes vs. no
Household characteristics				
Household income (5 category scale)	-2.0***	-4.5*	.8	$38,000 to $50,000 vs. <$12,000
Student was from single-parent household	2.2***	-1.0	.4	Yes vs. no
Community characteristics				
Student attended school in:				
Urban area	2.1**	1.8	2.2	Urban vs. suburban
Rural area	-1.3	1.2	-.6	Rural vs. suburban
Student Behaviors				
Has had disciplinary problems	8.7***	8.6*	10.5***	Yes vs. no
Student belonged to school/community group	-2.6***	-6.4**	2.0	Yes vs. no
Frequency of seeing friends (6 category scale)	.6**	4.0**	-1.9*	4 or 5 days/week vs. once/week
Student was older than typical age-for-grade	.5	4.2	1.8	Yes vs. no
Student had a job	-.3	-3.4	-.6	Yes vs. no

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* $p < .05$; ** $p < .01$; *** $p < .001$.

[†] Variables regarding students' primary disability were constructed somewhat differently for multivariate analyses purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

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irrespective of their academic performance or other characteristics. Failing a course, however, increased the estimated likelihood of grade retention more than any other factor examined, 18 percentage points. By failing a course at the secondary level, students lost the credits needed to qualify for the next grade level, increasing the probability of having to repeat a grade.

Although aspects of school performance were powerfully related, other factors also were shown to have independent relationships to how students did in school. Course failure resulted from more than poor attendance; grade retention was a response to more than poor grades.

Disability Characteristics

As was suggested in descriptive analyses earlier in this chapter, school performance varied significantly by disability category. For example, when compared with students with learning disabilities, deaf youth were absent significantly less and were significantly less likely to fail a course or to be retained at grade level, independent of other factors. We estimate that students who were deaf averaged about 5 fewer days absent from school, were 15 percentage points less likely to fail a course, and were 7 percentage points less likely to be retained in grade than students with learning disabilities, independent of other factors.

Measures of functional abilities were significantly related to some aspects of school performance, independent of a student's disability category. The measures of functional mental skills and self-care skills, however, operated in opposite directions. Students with high self-care skills had significantly lower absenteeism and were significantly less likely to be retained in grade than students with lower self-care abilities. Conversely, students with high functional mental skills had significantly higher absenteeism than students with lower functional abilities; they also had a marginally greater propensity for course failure and grade retention (about 2 percentage points), although these latter relationships were not statistically significant. The two measures of functional abilities may be distinguishing different causes of absenteeism. Students with low self-care abilities generally had physical or health-related disabilities, which may have resulted in high involuntary absenteeism due to illness or treatment. Students with higher functional mental skills may have had more activities that competed with school for students' commitments and energies, resulting in higher voluntary absenteeism. Although statistically significant, the estimated changes in school performance associated with functional abilities were not large.

Individual, Household, and Community Characteristics

Younger students and males were significantly more likely than others to have received a failing course grade. For example, 15-year-old students were estimated to be 8 percentage points more likely to have received a failing grade than 19-year-olds, independent of disability characteristics, demographics, or student behaviors. Confirming findings from research on the general student population (e.g., Eckstrom et al., 1986), males with disabilities were estimated to be 8 percentage points more likely than females to have received a failing grade. This gender difference is independent of behaviors included in the model that often are more readily associated with male students, such as having had disciplinary problems or having a job that might compete with school responsibilities. Age and gender did not relate significantly either to absenteeism or to grade retention.

Several measures of socioeconomic status were found to be significantly related to absenteeism and course failure, but no significant relationships were apparent to grade retention. Being from a low-income, urban, or single-parent household all were related to higher absenteeism, independent of other factors. For example, students from single-parent households were estimated to average 2 more days absent in a year than students from two-parent households (p<.001). This finding perhaps results from less parental oversight in single-parent households, particularly if the single parent was working outside the home and was not present to monitor student attendance. Being from a lower-income household also was significantly associated with a higher rate of course failure. Similarly, being a minority was significantly associated with a higher likelihood of receiving a failing grade (6 percentage points; p<.05).

Student Behaviors

Student behaviors demonstrated strong relationships to school performance in the predicted directions. Students who were having disciplinary problems were estimated to miss almost 9 days more of school, on average, than students not having such problems (p<.001). They were estimated to be 9 percentage points more likely to have failed a course (p<.05) and more than 10 percentage points more likely to have been retained at grade level (p<.001), independent of other factors in the analyses.

Those belonging to school or community groups were estimated to miss 3 fewer days in the school year than students without such affiliations (p<.001) and to be 6 percentage points less likely to have failed a course (p<.01), independent of other factors. The relationship between seeing friends often and both higher absenteeism and higher grade failure (p<.01) suggests that spending considerable time with friends competes with time for school; students who saw friends outside of school 4 or 5 days a week were estimated to have a rate of absenteeism more than a full day higher than students who saw friends once a week and were 4 percentage points more likely to have failed a course. However, seeing friends frequently relates in the opposite direction to grade retention, contrary to expectations.

These findings lend support to the theory of social bonds as an underlying factor in school performance. Students who were abiding by school norms (i.e., were not having disciplinary problems) and who were affiliated with school or community groups were absent less often and were less likely to fail courses, other factors being equal. Conversely, for students whose friendship affiliations occurred frequently and largely outside of school, competition between time spent with friends and school demands may explain their higher absenteeism and poorer grade performance.

Previous academic difficulties resulting in students' having been held back one or more previous grades, as suggested by their being older than the typical age for their grade level, was consistently related to poorer school performance, but not significantly. An opposite pattern was noted for students having had a job in the previous year. The pattern was consistently associated with better school performance, but the relationships were not statistically significant.

Combined Effects of Behavioral Factors on School Performance

The multivariate analysis results discussed thus far consider the independent effects of a variety of factors on each measure of school performance separately. However, this is only part of the story regarding the relationship of student characteristics and behaviors to school performance. The conceptual framework elaborated in Figure 4-2 depicts the interrelationships of the three aspects of school performance, interrelationships powerfully confirmed in Table 4-18. One implication of the chain of relationships among the measures of school performance is that factors that are related to one measure are, through that measure, indirectly related to aspects of school performance that occur later in the causal sequence. In other words, the fact that absenteeism was strongly related to course failure means that factors contributing to higher absenteeism also contributed indirectly to a higher likelihood of course failure. A factor that related independently to absenteeism or to course failure may have had both a direct and an indirect effect on grade retention. Hence, to understand the full effects of an independent variable on school performance, its total direct and indirect effects must be determined.

For example, having had disciplinary problems was related strongly to higher absenteeism and to a higher likelihood of failing a course. Its total effect on course failure, then, combines both its direct effect on grade performance (i.e., a 9 percentage point increase in the probability of course failure) and the portion of the effect of higher absenteeism on course failure that is attributable to having had disciplinary problems. In turn, the total effects of having had disciplinary problems on the likelihood of grade retention is the combination of its direct relationship (a 10 percentage point increase in the probability of grade retention) plus the indirect effects that factor had on grade retention through increasing absenteeism and the probability of course failure.

To illustrate, let us consider students with characteristics that may put them at risk of poor school performance. Male, 17-year-old students with learning disabilities from low-income households in urban areas might be such students. Let us assume that each had the average IQ and functional skill levels of youth in his disability category and, like the majority of such students, each was a year older than his peers because they repeated an earlier grade. The analysis of absenteeism would suggest that such students who had had disciplinary problems would average 26 days absent from school, compared with 18 days for students who had not had such difficulties.

The analysis further suggests that the direct effects of having had disciplinary problems alone would make the troublesome students 9 percentage points more likely to fail a course than their peers who had not gotten into trouble. However, if we consider the higher absenteeism of students with disciplinary problems, as well as the direct effects of that factor, the difference in the probability of course failure increases to 20 percentage points.

By the end of the year, we would estimate that the students with disciplinary problems would be 10 percentage points more likely than their peers to be retained in grade if other things were equal. But higher absenteeism and poorer course grades make other things unequal. The combined effects of disciplinary problems, poor attendance, and poor grades increases the chances of grade retention to 54% for students with those characteristics, compared with 17% for others, a difference of 37 percentage points.

Beyond considering the full effects of any one factor on the chain of relationships tying together aspects of school performance, we also must recognize that the behavioral characteristics we have examined are not independent. Students who experienced disciplinary problems were less likely to have been affiliated with school or community groups and were more likely to have spent considerable time seeing friends outside of school (see Chapter 6). This constellation of behavioral factors is more powerfully related to school performance than is suggested by examining any one of the factors alone.

Returning to the students with learning disabilities used in the example above, if the students who had disciplinary problems also did not belong to any groups and spent time seeing friends outside of school virtually every day, we would estimate that they would miss 28 days of school, compared with 15 days for similar students who affiliated with groups at school, saw friends only two or three days a week outside of school, and did not experience disciplinary problems. The combined direct and indirect effects on the likelihood of failing a course of these behaviors and their associated higher absenteeism would make the probability of course failure 79% for the "problem" students, compared with 37% for the others. With higher absenteeism and a higher probability of course failure, the students who exhibited poor social bonds with school would have had a 48% chance of being retained at the end of the year, compared with 14% for their peers.

The strong relationships noted for various aspects of student behaviors suggests several leverage points for those interested in improving students' school performance. Findings suggest that school performance is not influenced only by disability characteristics, IQ, or demographic characteristics of students that are impervious to change. Even when given similar characteristics of poverty and disability, some students did better than others. Students who bonded with school, whose friendships did not overly compete with the time needed to meet school responsibilities, and who abided by social rules sufficiently to avoid disciplinary problems were better students. These behaviors are learned, beginning at an early age. Schools can encourage such behaviors by setting clear expectations for them, by providing opportunities for students with widely varying interests to find social memberships, and by working with parents to set guidelines for appropriate out-of-school social activities.

School Factors Related to School Performance

Thus far, we have focused attention on characteristics of students, their backgrounds, and their behaviors, in our effort to understand the school performance of students with disabilities. However, a preoccupation with individual correlates of school performance alone both underlies and reinforces the assumption that when poor performance occurs, one should look to the student for its cause. If conventional wisdom asserts that poverty, ethnicity, and family dysfunction are the causes of poor performance, for example, educators may justifiably feel frustration and despair when confronting classrooms of poor, inner-city, minority students from troubled families. What is the school to do when there are three strikes against the student already? Some educators, policymakers, and researchers have concluded that the schools can do little.

To combat this sense of powerlessness, educators need to know that the school programs they provide students can and do influence school performance. They need to know what works in enabling students to perform to the extent they are able. In this section, we consider several aspects of schools, their policies, and the educational programs students experience there to understand their relationships to school performance of students with disabilities. This focus shifts our attention to Boxes B and C of our conceptual framework, highlighted in Figure 4-3.

School Characteristics and Policies

Box B in Figure 4-3 illustrates the hypothesis that the school context sets a climate for student performance and influences that performance. Table 4-19 presents data regarding the following aspects of the school context and their relationships to school performance:

- *Student enrollment.* Recent research on the relationship of social bonding to better attendance suggests that students in smaller schools can more readily establish social bonds that support commitment to school and to good performance in school than can students in larger schools (U.S. General Accounting Office, 1987; Grabe, 1981; Wehlage, 1983; Wehlage et al., 1989; Pittman and Haughwout, 1987; Gump, 1978). Although Table 4-19 shows no significant differences in school performance based on school size, in multivariate analyses, students attending larger schools were significantly more likely to have failed a course.
- *Attended a special school.* We have included in these analyses a dichotomous variable indicating whether the student attended a special school, to stand as a proxy for the variety of differences between regular and special schools that were discussed in Chapter 3 and that may affect student performance. Special schools often have more specialized staff and tailored programs to address the particular learning needs of their students, which could lead to better school performance for special school students. However, attending a special school is confounded with student characteristics. For example, for youth in some disability categories, those in special schools were generally more severely impaired; for other categories, special schools often attracted students who already were having trouble succeeding in regular schools and exhibited factors associated with lower performance. Only receipt of failing grades was related to school type in Table 4-19, with special school students being significantly less likely to fail a course (11% vs. 33%; p<.001).

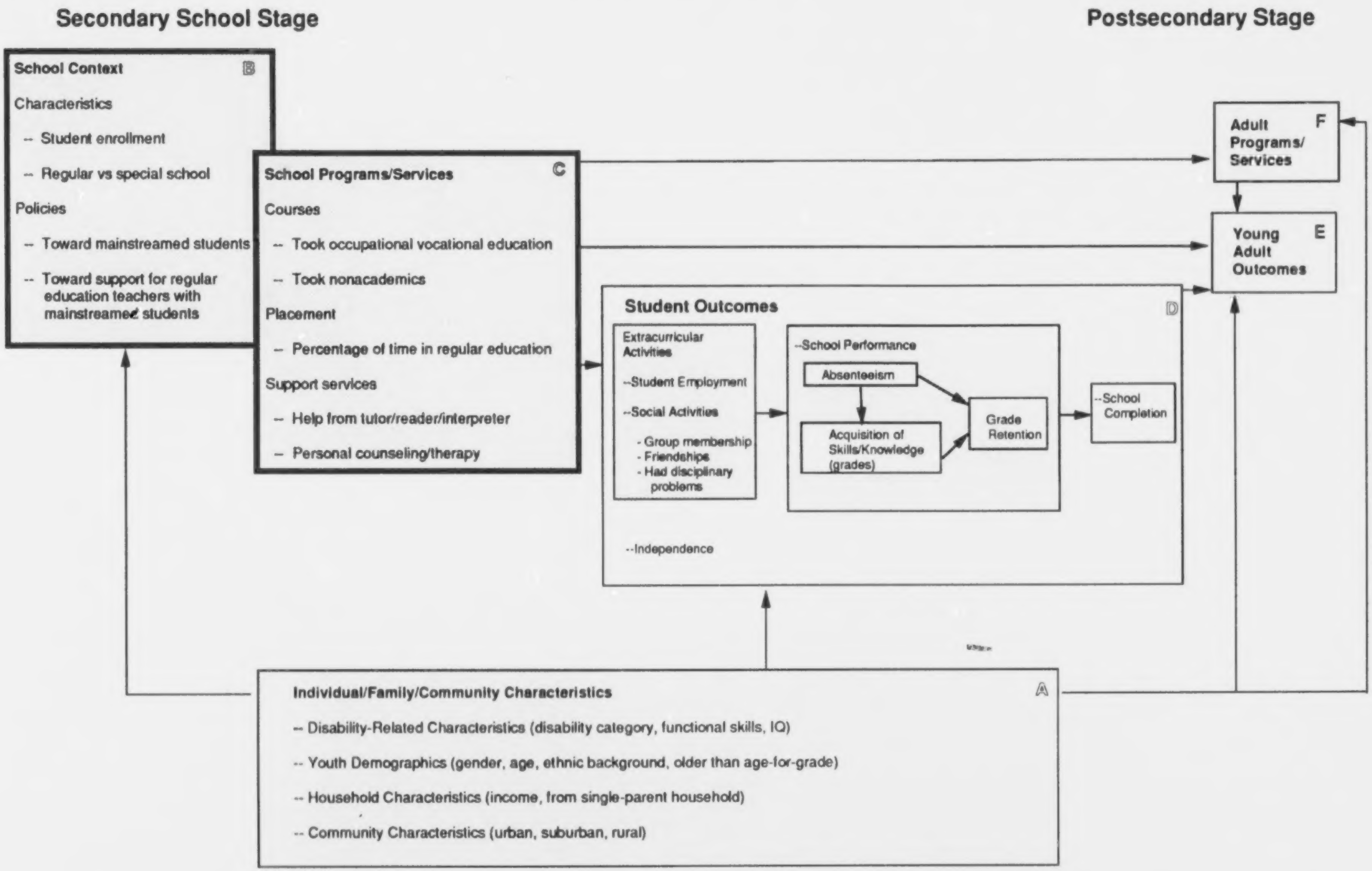
Secondary School Stage
Postsecondary Stage
School Context
B
Characteristics
-- Student enrollment
-- Regular vs special school
Policies
-- Toward mainstreamed students
-- Toward support for regular education teachers with mainstreamed students
School Programs/Services
C
Courses
-- Took occupational vocational education
-- Took nonacademics
Placement
-- Percentage of time in regular education
Support services
-- Help from tutor/reader/interpreter
-- Personal counseling/therapy
Adult Programs/ Services
F
Young Adult Outcomes
E
Student Outcomes
D
Extracurricular Activities
--Student Employment
--Social Activities
- Group membership
- Friendships
- Had disciplinary problems
--School Performance
Absenteeism
Acquisition of Skills/Knowledge (grades)
Grade Retention
--School Completion
--Independence
Individual/Family/Community Characteristics
A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, older than age-for-grade)
-- Household Characteristics (income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 4-3 THE RELATIONSHIP OF SCHOOL FACTORS TO SCHOOL PERFORMANCE

Table 4-19

VARIATIONS IN SCHOOL PERFORMANCE BY SCHOOL CHARACTERISTICS

	Number of Days Absent			Students Failing One or More Courses			Students Retained at Grade Level		
School Characteristics/Policies	Mean	S.E.	N	%	S.E.	N	%	S.E.	N
School characteristics									
Attended special school									
Yes	16.3	1.4	1,492	10.7	2.3	1,592	12.1	5.3	541
No	14.8	.5	3,702	33.1	1.6	4,112	7.5	1.2	2,233
Student enrollment									
500 students or fewer	13.8	.9	1,947	28.0	3.4	535	5.8	2.1	792
501 to 1,100 students	15.7	.8	1,367	34.0	2.5	1,440	8.0	2.0	794
> 1,100 students	14.5	.9	1,555	32.8	2.9	1,807	9.8	2.5	1,008
School policies									
School reported offering following support to regular teachers with mainstreamed students									
Special materials for students									
Yes	13.8	.9	999	31.9	2.3	1,944	7.5	1.8	1,086
No	13.8	1.0	1,268	32.9	2.6	1,346	7.0	1.8	1,245
Inservice training on mainstreaming									
Yes	13.8	1.1	800	38.0	2.8	1,499	7.3	2.0	852
No	13.8	.9	1,467	28.9	2.2	1,791	7.2	1.7	1,479
Classroom aides									
Yes	13.7	1.4	654	37.3	3.3	1,283	7.2	2.5	693
No	13.8	.8	1,613	30.4	2.0	2,007	7.3	1.5	1,638
Smaller class size									
Yes	10.7	1.5	212	29.7	4.7	444	7.1	4.0	211
No	14.1	.7	2,055	32.7	1.9	2,846	7.3	1.4	2,120
School reported expecting mainstreamed students to keep up in regular classes without help									
Yes	13.6	1.3	577	33.6	3.1	1,164	7.2	2.3	642
No	13.8	.8	1,687	31.4	2.1	2,133	7.3	1.5	1,685

Source: Survey of Secondary Special Education Programs and students' school records for their most recent school year.

Multivariate analyses, which control for the confounding effects mentioned above, reveal no significant difference between regular and special school students on any measure of school performance.

- *Whether mainstreamed students were expected to keep up in regular education classes without help.* Although the NLTS does not measure directly the presence of a caring attitude on the part of school staff, a factor found to be related to better school performance (Wehlage, 1983), we have measured the extent to which schools reported that mainstreamed students generally were expected to keep up in regular education classes without help. (Chapter 3 reports that more than one-third of regular school students attended schools with this "sink or swim" policy.) Such a policy may proxy for the absence of a caring attitude; conversely, schools without such a policy may exhibit a more caring attitude. We expect students who attended schools with a policy that mainstreamed students should keep up without help to have poorer school performance than students who attended schools that recognized that mainstreamed students may need help to succeed. However, this factor is not found to relate significantly to any measure of school performance.

- *Whether regular education teachers with mainstreamed students were given support.* Various forms of support to regular education teachers of mainstreamed special education students (e.g., smaller class size, special materials) were intended to help them better respond to the individualized learning needs of their students. To the extent they were successful in doing so, student performance would be higher for students attending schools that reported routinely providing teachers with such support. No systematic relationships were revealed between most forms of support and most measures of school performance. However, we do find, as expected, that students attending schools that reported regular education teachers had smaller classes if they contained mainstreamed students were absent significantly less than students who attended schools without that support for teachers (11 days vs. 14 days; $p<.05$).

  A second relationship between teacher support and student performance is contrary to expectations. Students attending schools that reported routinely providing regular education teachers with inservice training on mainstreaming were significantly more likely to have failed a course. It is unlikely that the training provided teachers actually had a detrimental effect on grades earned by or given to special education students. It is more likely to be something about the schools in which inservice training on mainstreaming was provided that affected receipt of failing grades. For example, it is possible that inservice training was being provided in schools with regular education teachers who were reluctant to receive mainstreamed students or who needed help to adapt their instructional approaches to accommodate the needs of these students. In such an environment, special education students may have been doing less well than in schools in which regular education teachers accommodated mainstreamed students more readily or more effectively, making inservice training on the issue unnecessary.

Students' School Programs

The school factors illustrated in Box B of Figure 4-3 and discussed above are characteristics of the schools themselves and, therefore, are not individualized for each student. However, factors included in Box C characterize the educational program of each student. As such, we expect to see stronger relationships between these individual student program characteristics and students' school performance. Table 4-20 presents the bivariate relationships between school performance and characteristics of students' school programs.

- *Enrollment in occupationally oriented vocational education.* The social-bonding literature suggests that programs relevant to students' interests have greater "holding power" over students. Relevance of school programs is difficult to measure because what is considered relevant varies among students. However, we have assumed that for many students with disabilities, a vocational program may be perceived as more relevant than a traditional academic program in light of the fact that a much greater proportion of students with disabilities transition directly into the job market, rather than to college, when they leave secondary school. Thus, we have included in the analysis a variable indicating whether the student took occupationally oriented vocational education as a proxy measure of the relevance of school programs.

Table 4-20

VARIATIONS IN SCHOOL PERFORMANCE BY CHARACTERISTICS OF STUDENTS' SCHOOL PROGRAMS

Students' School Program	Number of Days Absent			Students Failing One or More Courses			Students Retained at Grade Level		
	Mean	S.E.	N	%	S.E.	N	%	S.E.	N
Student took in the most recent year:									
Occupationally oriented vocational education									
Yes	14.9	.6	2,962	33.7	2.0	2,334	7.2	1.5	1,633
No	15.0	.8	2,186	32.5	2.5	1,744	8.4	2.0	1,129
Nonacademic courses									
Yes	14.0	.7	2,325	35.4	2.2	2,536	8.2	1.3	2,386
No	14.5	2.2	288	28.7	6.2	321	4.4	2.9	310
Student received in the most recent year from the school:									
Help from a tutor/reader/ interpreter									
Yes	13.7	1.2	1,083	28.9	3.9	1,171	4.5	2.2	762
No	14.9	.6	3,192	31.7	1.8	3,500	8.2	1.4	1,997
Personal counseling/therapy									
Yes	16.5	1.2	1,064	32.8	3.5	1,152	10.6	3.2	621
No	14.2	.6	3,208	30.8	1.8	3,516	6.8	1.3	2,137
Percentage of time in regular education courses									
0%	15.8	2.2	654	14.3	3.1	653	16.1	4.5	655
1% to 33%	17.9	2.0	431	31.2	3.5	735	6.1	2.7	450
34% to 66%	13.2	1.3	442	33.8	3.5	701	8.4	2.8	398
67% to 99%	12.5	1.1	530	40.8	3.1	1,050	6.3	2.4	609
100%	12.4	1.1	555	34.8	3.8	945	6.1	2.5	582
Number of courses for which grades given									
1 or 2	NA	NA	NA	19.7	8.8	101	NA	NA	NA
3 or 4	NA	NA	NA	22.7	4.6	430	NA	NA	NA
5	NA	NA	NA	30.0	4.0	369	NA	NA	NA
6	NA	NA	NA	34.8	3.2	1,100	NA	NA	NA
7	NA	NA	NA	39.2	3.5	1,022	NA	NA	NA
8 or more	NA	NA	NA	40.1	3.3	1,406	NA	NA	NA

Source: Days absent from school, number of graded courses, enrollment in vocational education, and percentage of time in regular education are from students' school records. Receipt of tutoring assistance and counseling is based on parent interviews or school records; see Appendix C.

Again, although no significant bivariate relationships were noted in Table 4-20, significant relationships were found in multivariate analyses between taking occupationally specific training in school and both lower absenteeism and lower rates of grade retention.

- *Enrollment in nonacademic courses.* Earlier analysis suggested that course grades were higher for nonacademic classes. To the extent that such a relationship applies to school performance more broadly, we would expect to see higher performance among students who took nonacademic courses (90% of students attending regular schools took such courses), compared with those who did not. However, Table 4-20 demonstrates no such relationship, perhaps because of its limited variability.

- *Receipt of support services.* Tutoring assistance and personal counseling are two forms of support for students that may be effective in ameliorating poor school performance. Tutoring may be successful because of the individualized instruction that it implies. The one-to-one relationship of tutoring, as well as counseling, also may be effective in communicating to students that someone cares about their educational performance and believes that they can achieve, factors found to be effective in improving school performance for youth at risk of school failure (Wehlage et al., 1989). No significant differences in school performance are noted in Table 4-20 for students who received such support and those who did not; receiving personal counseling was significantly related to higher absenteeism in multivariate analyses, contrary to expectations. Perhaps counseling was being provided to students at risk of poor school performance in ways not measured or controlled for in these analyses.
- *Percentage of instructional time in regular education.* Recent literature has determined that characteristics of effective programs for students with poor school performance include low student/teacher ratios, individualized programs, a caring adult attitude, and a secure classroom environment. Although the NLTS does not measure these factors directly, some of them (e.g., individualized instruction and curricula) often are more characteristic of special education programs than of regular education classes. To the extent that these factors characterize special education and are effective in improving school performance, we hypothesize that students with more time in special education and, therefore, a lower proportion of instructional time in regular education, would have better school performance. Further, grading standards in regular education courses often are more stringent. Students with more time in regular education would be expected to fail courses more often because the demands of regular coursework make it more difficult for them to achieve. Table 4-20 demonstrates that students with no time in regular education were significantly less likely to fail courses than other students (14% vs. 31% or more); this latter relationship of time spent in regular education and the likelihood of receiving a failing grade is confirmed in multivariate analysis.
- *Number of courses for which grades were received.* Mathematically, a student's chances to receive a failing grade increase when more graded courses are taken, apart from the nature or placement of such courses. We have considered this factor only in relationship to receipt of failing grades, and find the expectation confirmed in Table 4-20.

Although few significant relationships are apparent in Tables 4-19 and 4-20, we have seen in Chapter 3 that the nature of students' school programs and the nature of their abilities and disabilities are strongly related. For example, students who took occupational training (rather than a strictly academic program) perhaps were less likely to be college-bound. Such students might have demonstrated poorer performance than college-track students, irrespective of their vocational training. Multivariate analyses are needed to identify the independent effects of school factors when student characteristics are controlled for in the analyses.

Multivariate Analysis of School Factors Related to Students' School Performance

Overall, we find that adding school factors to analyses of school performance adds little to the explanatory power of the analyses beyond the disability, individual, household, community, and behavioral characteristics already discussed. For example, an analysis of absenteeism including only the student characteristics discussed earlier yielded an r^2 of .12, which increased only to .13 when school factors were added. Despite this generally low predictive power of school factors, several of them were significantly related to various aspects of school performance in multivariate analyses, as summarized in Table 4-21 (all student variables discussed previously also were included in this analysis).

Table 4-21

ESTIMATED CHANGE IN SCHOOL PERFORMANCE ASSOCIATED WITH SCHOOL FACTORS

	Estimated Change in:			
	Average Number of Days Absent	Rate of Course Failure (Percentage Points)	Rate of Grade Retention (Percentage Points)	For Increment
School characteristics				
Attended special school	-.6	-.9	.8	Yes vs. no
Student enrollment	-.5	1.8*	.6	1,300 vs. 700 students
School policies				
Mainstreamed students expected to keep up in regular education classes without help	.8	2.3	1.6	Yes vs. no
School reported providing to regular education teachers with mainstreamed students:				
Special materials for students	.1	-1.4	-2.0	Yes vs. no
Inservice training	-.3	4.8*	2.6	Yes vs. no
Classroom aides	.3	.6	-3.3*	Yes vs. no
Smaller classes	-.1	-.1	7.1*	Yes vs. no
Students' school programs				
Student took in the most recent year:				
Occupationally oriented vocational education	-1.5*	-3.0	-5.0**	Yes vs. no
Nonacademic courses	-.3	-.4	.4	Yes vs. no
Student received in the past year from the school:				
Help from a tutor/reader/interpreter	-.6	-.2	1.3	Yes vs. no
Personal counseling/therapy	2.2***	2.4	3.0	Yes vs. no
Percentage of time in regular education classes	-.3	7.9***	-1.2	6 vs. 3 classes
Number of courses in which grades given	NA	7.2***	NA	6 vs. 4 classes

---

* p < .05.
** p < .01.
*** p < .001.

School Characteristics

- *School size.* Students attending larger schools had a significantly higher probability of course failure than students in smaller schools (p<.05), although the increase in the likelihood of failure was only 2 percentage points. This finding is consistent with social bonding theory, suggesting that larger schools may present a more difficult environment for students to find support when difficulties with school performance or other aspects of their lives occur.

School Policies

- *Support for teachers with mainstreamed students.* In contrast to the absence of relationships for these factors in the bivariate analyses, two aspects of teacher support were significantly related to the probability of grade retention in multivariate analyses. Students attending schools in which regular education teachers with mainstreamed students routinely were given classroom aides to help in their classes were 3 percentage points less likely to have been retained in grade than other students. Perhaps with classroom aides, students who were performing poorly would be more readily accommodated in regular education classes or would improve their performance, encouraging promotion rather than retention.

  An unexpected relationship is found between schools reporting that teachers were given smaller classes when they had mainstreamed students and a higher likelihood of students being retained in grade (7 percentage points; p<.05), a finding inconsistent with the relationship of having classroom aides and grade retention. This finding may be similar to the apparent relationship, mentioned earlier, that students attending schools in which inservice training on mainstreaming was provided to regular education teachers with mainstreamed students were significantly more likely than other students to have received a failing grade (almost 5 percentage points; p<.05). Again, a possible explanation for these findings is that such support was provided more frequently in schools in which mainstreaming was fairly new or was problematic, an environment that may have affected the performance or treatment of special education students in such schools.

Students' School Programs

- *Participation in occupationally oriented vocational education.* Despite the absence of relationships in the bivariate analyses, when student factors were controlled, taking occupationally oriented vocational education was significantly related to better school performance on two measures. Students who took such training were estimated to miss 1 less day of school, and to be 5 percentage points less likely to have been retained at grade level. It also was related to a lower likelihood of course failure, but the relationship did not attain statistical significance.

  These findings suggest that occupational training not only may provide students with skills to prepare them for later employment, but may improve their performance while they are still in school. An alternative explanation can be inferred from the work of Thornton and Zigmond (1987), who suggest that, because vocational education is more common among students in higher grades, youth who are "at risk" drop out before becoming involved in vocational courses. The more successful students remaining to enroll in vocational education account for its apparent positive effects. However, our analysis controlled for student age as well as several factors associated with being at risk of course failure (e.g., high absenteeism, repeating earlier grades, having disciplinary problems), and found that positive relationships between vocational training and better performance persisted.

- *Receiving support services.* Although receiving tutoring assistance was not consistently or significantly related to school performance, we do find such relationships for receiving personal counseling or therapy, but in the unexpected direction. Students who received counseling are estimated to have missed 2 more days of school (p<.001), to be 2 percentage points more likely to have failed a course, and to be 3 percentage points more likely to have been retained in grade. As suggested earlier, rather than concluding that counseling had detrimental effects on school performance, it is likely that students received counseling at least in part because they were at risk of school failure. Such students may have had a propensity to poor school performance because of factors not controlled for in these analyses.
- *Percentage of time in regular education classes.* Students who spent a greater percentage of their time in regular education classes and in classes for which grades were given were significantly more likely to have failed a course in their most recent school year. For example, we estimate that students who were mainstreamed for 6 classes would be almost 8 percentage points more likely to receive a failing grade than similar students who were mainstreamed for 3 courses (p<.001). Being graded in more courses has a similar magnitude of relationship, independent of other factors. Students who were mainstreamed for more courses received grades in more courses, reinforcing the conclusion that students with disabilities whose school programs came closest to approximating those of their nondisabled peers (e.g., in regular education classes for which grades were given), were significantly more likely than other students to receive a failing grade, independent of their IQ, functional abilities, and other factors included in the analysis. Because poor performance in regular education classes was often the impetus for the original referral of many students to special education, it is not surprising that some special education students continued to find it difficult to succeed academically in the regular education environment.

No consistent or significant relationships were found regarding special school enrollment or taking nonacademic classes when other aspects of students and their programs were controlled for in the analyses. Although there was a consistent relationship between attending a school with a policy that mainstreamed students were expected to keep up in regular education classes without help and poorer performance on all three measures, the relationships did not attain statistical significance.

Combined Effects of School Factors on School Performance

Throughout this analysis, we have seen that student characteristics and student behaviors had relatively stronger relationships to measures of student performance than did characteristics of students' schools or educational programs. Some school factors had significant relationships to some measures of student performance, but the findings regarding school effects were not consistent nor were the relationships generally strong. However, focusing on the relationships of individual school factors to single measures of student performance understates the potential impact of school factors in combination on measures of student performance in combination.

To illustrate this point, we take again the example of white male students classified as learning disabled that was used earlier in this chapter. Let us assume that all students had the

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same behavioral characteristics that were average for students in their disability category. Variations in school factors can combine to paint very different pictures of these students' prospects for succeeding in secondary school. Let us imagine that some students attended schools in which mainstreamed students were expected to keep up in their regular education classes without help. Six of their 7 classes were regular education courses, and they received grades in all courses. Their schedules did not include occupationally oriented vocational classes or nonacademic classes. They did not receive tutoring assistance from the school to help with school work, nor did their regular education teachers receive special materials to use in their instruction.

In such a scenario, we would estimate that these students would be absent more than 18 days in the school year. With the kind of program they had and this level of absenteeism, we estimate that they would have almost a 2 in 3 chance (65%) of failing a course. With this high probability of course failure and relatively high absenteeism, the likelihood of their not being promoted at the end of the year would be 35%.

In contrast, suppose their learning disabled peers attended schools that recognized that mainstreamed students may need additional help to keep up in their regular education classes. In this vein, the school offered regular education teachers who had mainstreamed students special materials for those students. These students were mainstreamed for 5 of their 7 classes and received grades for 6 of their courses. They were enrolled in occupationally oriented vocational education, and each took one nonacademic course. Their schools provided peer tutors to help them with school work.

These learning disabled students would be estimated to miss 16, rather than 18, days of school. With this slightly lower absenteeism and more supportive school and school program, the likelihood of their failing a course would be markedly lower than for their peers, 42% compared with 65%. Although these students clearly were still struggling academically, their lower absenteeism and lower probability of course failure combined with their program and school characteristics to yield a probability of retention in grade of 11%, compared with 35% for the students described previously.

Clearly, no one combination of school characteristics or school programs is "the answer" for any particular student or group of students. However, these scenarios suggest that, although poor school performance is a complex problem that often is compounded through several school years, differences in school policies and school programs can affect the chances for students with disabilities to succeed in school.

Summary

In this chapter, we have examined four measures of school performance for students' most recent school year: student absenteeism, grade performance, minimum competency test performance, and rates of retention at grade level. NLTS data suggest the following regarding these aspects of school performance:

- How well were students in different disability categories and at different grade levels doing in school? Analyses of school performance for students with disabilities demonstrate that many students were having a difficult time in school. Absenteeism averaged 15 days per year; one-third of students failed at least one course in their most recent school year. Fewer than half of students who took minimum competency tests passed all of the test, and almost 1 in 10 students who remained in school were retained at their grade level at the end of the school year. Rates of absenteeism, course failure, and retention were significantly higher than these overall rates for youth in some disability categories, particularly those classified as emotionally disturbed. School performance was generally highest for students with sensory impairments. Absenteeism was highest and grade performance lowest among 9th-graders.
- What were the relationships among different aspects of school performance? The aspects of school performance examined here were strongly related. For example, students with grade averages below a C averaged 21 days absent from school, compared with 9 days for students with B averages or better. Similarly, 19% of students with grade averages below a C were retained at grade level, compared with 8% of students with B averages or better. In multivariate analyses, high absenteeism was strongly related to a higher probability of course failure. Together, course failure and higher absenteeism were powerful predictors of retention in grade.
- Who was having trouble in school? What were the individual and household characteristics that distinguished students with various levels of school performance? In examining factors related to measures of student performance, we find that many of the influences on student performance are immutable characteristics of the student. Student age, gender, and ethnicity are examples of factors that related significantly to various measures of student performance. Other influences on performance were social or behavioral factors, such as the absence of social bonds, reflected in lack of affiliation with school or community groups, and the tendency to get into conflicts that resulted in disciplinary actions.
- What were schools doing that seemed to help? What characteristics of the schools or their policies or programs were related to various levels of school performance? There is potential for schools and school staff to shape educational experiences for students with disabilities in ways that will support them in coming to school and achieving in school. Occupational training is one example of an educational intervention that related significantly both to the number of days students attended school and to the likelihood that they would be promoted to the next grade; it also was related to a lower likelihood of course failure, but the relationship was less strong. Because of the strong relationship among measures of student performance, factors that related to lower absenteeism had indirect benefits in lowering the likelihood of course failure. Similarly, reduced course failure reduced the likelihood of retention in grade at year's end.

Improving student performance is a positive outcome in itself. Its importance is underscored, however, when we examine the relationships between school performance and secondary school completion, the focus of the following chapter.

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5 STICKING IT OUT: SECONDARY SCHOOL COMPLETION

by Mary Wagner

The issue of secondary school completion is the natural culmination of our examination of secondary school experiences and performance. In the previous two chapters, we described the schools, programs, and course-taking behavior of students with disabilities and analyzed various dimensions of their secondary school performance. Throughout secondary school, consciously or unconsciously, many students assess those experiences and their performance, weighed against other options, and determine whether they will continue in school or leave without graduating.

Increasing concern is being expressed by parents, educators, and policymakers about students who choose to leave school without graduating. Although the dropout rate has declined markedly through this century and has held relatively steady in the past decade, public concern has increased as the consequences of dropping out have become more severe. For example, the William T. Grant Foundation on Work, Family, and Citizenship (1988) suggests that high school dropouts suffer more unemployment than all other groups of young people. To illustrate, in 1986, only 55% of dropouts under age 20 were employed; only 31% of male dropouts and 1 in 7 female dropouts were working full time. Further, although fewer than 20% of the adult population were dropouts, they constituted 66% of the nation's prison population.

As a reflection of increased public concern regarding the dropout problem, numerous programs are springing up at all levels of the school system to identify students "at risk" of dropping out and to provide a variety of treatments geared toward preventing premature school leaving (U.S. General Accounting Office, 1987). With few exceptions, these programs focus on the general student population. Special education students rarely are the target population for dropout prevention programs because their special education programs are assumed to ameliorate risk factors most pertinent to their circumstances.

The tendency to overlook students with disabilities when addressing issues of early school leaving may result in part from an absence of comprehensive, reliable information on the extent of the dropout problem for students with disabilities. Although states now are required to report to OSEP on the school completion status of special education students leaving secondary school, the status of more than 13% of students leaving special education was reported as "other" (U.S. Department of Education, 1989). This category includes students who left school for a variety of known and unknown reasons (e.g., death, moved to new schools, withdrew). Many of these students were dropouts.* This discrepancy between school-reported data and actual completion status points up the difficulty of relying on school records for information about individual decisions; interview data are generally more reliable indicators of individual statuses or activities.

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* In assessing the level of agreement between school reports and parent reports of school completion status, the NLTS found, for example, that schools listed 6% of students with a status of transferred/moved at the end of the school year. (Other categories included graduated, dropped out, over-age, promoted/not promoted, institutionalized, incarcerated, expelled, and other.) Of the students who schools thought had transferred/moved, 65% of parents reported the youth had actually dropped out.

The NLTS provides the first national figures on dropout rates for students with disabilities based on information gathered largely from individuals.* These data permit us to address several important questions regarding secondary school completion of students with disabilities:

- At what rates did school exiters with disabilities leave secondary school by graduating, exceeding the school age limit, dropping out, or being suspended or expelled?
- To what extent did high school graduates with disabilities receive regular diplomas or other kinds of certificates of completion?
- How do dropout rates for youth with disabilities compare with those of the general population of youth?
- What were the reasons reported by parents for dropouts' leaving school without graduating?
- How did the characteristics of students who dropped out of school compare with those of students who persisted in school (i.e., remained in school or completed school by graduating or aging out)?
- What were schools doing that appeared to help students to persist in school? What characteristics of schools, policies, or programs were associated with a higher likelihood of students' persisting in school?
- Taking a longitudinal view, to what extent did students who dropped out of secondary school in the 1985-86 or 1986-87 school years resume their secondary educations by 1989?

The School Completion Status of Secondary School Leavers

In the general student population, there are three typical modes of leaving secondary school. Students can accumulate the necessary course credits in their high school programs and graduate; they may choose to leave school without graduating (drop out); or they may be involuntarily and permanently suspended or expelled from school (a fairly rare occurrence). Students with disabilities can exit secondary school in these three modes as well. In addition, they may "age out"—stay in school until they reach the legal age limit for receiving special education services without accumulating the necessary credits for graduation. (Age limits vary by state, ranging from 19 to 26 years old; U.S. Department of Education, 1989.) Figure 5-1 indicates the rate at which students with disabilities left secondary school in either the 1985-86 or 1986-87 school year through these four modes.

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* School completion status is a variable based on a combination of parent and school reports, because no single source of data was available for all students. Data refer to the student's most recent year in secondary school. This was the 1986-87 school year for students still in school at the time of the 1987 interview or those who had left school in the previous year. For students who had been out of secondary school more than 1 year at the time of the interview, their most recent school year was 1985-86. See Appendix C for details on the data sources and definitions of variables.

Overall, 56% of exiters from high school in a 2-year period graduated.* This rate of graduation is quite similar to graduation rates of 60% and 59% reported by states for exiters with disabilities for the 1985-86 and 1986-87 school years (U.S. Department of Education, 1988 and 1989). Almost 1 in 3 school leavers with disabilities (32%) dropped out of school, and 4% were suspended or expelled. Fewer than 1 in 10 students (8%) left school because they exceeded the school age limit.

As with most other experiences, students with disabilities varied widely by disability category in the extent to which they left secondary school by graduating, aging out, dropping out, or being suspended/expelled. Figure 5-2 demonstrates this variation for youth with disabilities who left secondary school in the 1985-86 or 1986-87 school year; youth were ages 15 to 23.

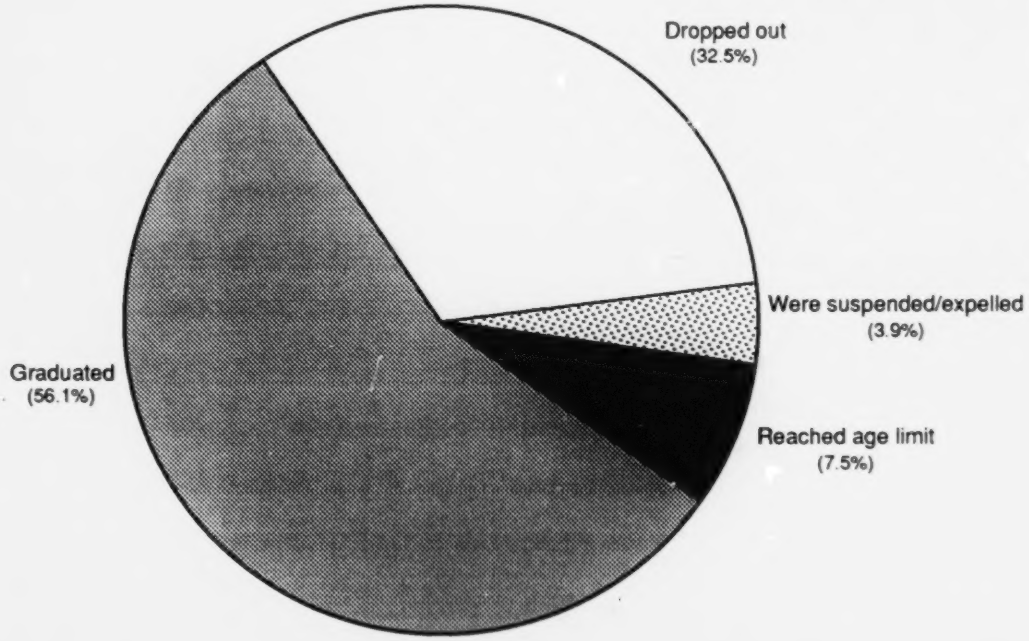

FIGURE 5-1 SCHOOL COMPLETION STATUS OF SECONDARY SCHOOL LEAVERS IN A 2-YEAR PERIOD (n=3,048)

Source: Parent interviews and students' school records.

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* The NLTS graduation rate is calculated by taking the total number of students with disabilities who left school in the 1985-86 or 1986-87 school year by graduating (with either a regular or special diploma), divided by the total number of students with disabilities leaving secondary school in those years.

Exiters with sensory or orthopedic impairments graduated at rates between 70% and 75%, which approached rates reported for the general student population (75%, NCES, 1989). Half or fewer of the exiters in the multiply handicapped (32%), deaf/blind (43%), emotionally disturbed (42%), and mentally retarded (50%) categories graduated. However, the reasons for these relatively lower graduation rates varied for the different categories of youth. For example, nongraduates in the multiply handicapped and deaf/blind categories were most likely to have aged out (50% of exiters), while those in the emotionally disturbed category were most likely to have dropped out (50% of exiters).

Exiters in the emotionally disturbed category were significantly more likely than youth in any other disability category to have dropped out (50%; p<.001). Almost 1 in 3 exiters classified as learning disabled (32%) dropped out, as did 28% of exiters classified as speech impaired and 29% of those with mental retardation. The dropout rate for exiters with other health impairments was 25%. Rates for other categories were generally 15% or below.

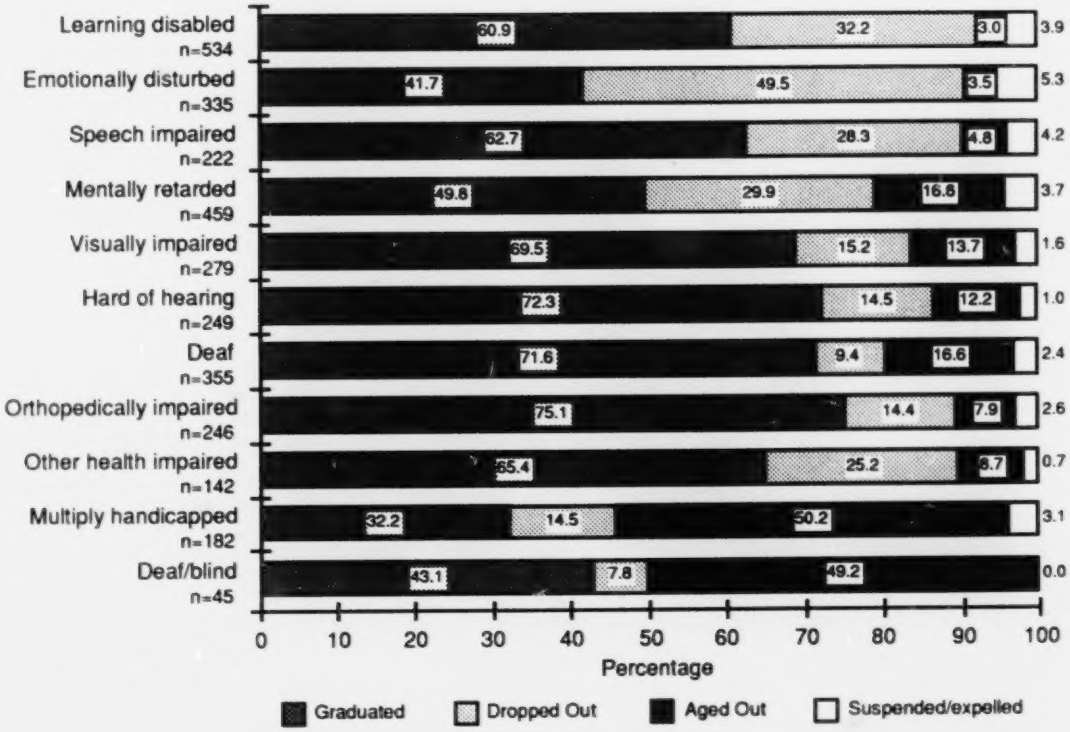

FIGURE 5-2 MODE OF SCHOOL LEAVING OF SECONDARY SCHOOL EXITERS, BY DISABILITY CATEGORY

Source: Parent interviews and students' school records.

When students with disabilities graduate from secondary school, they may receive a regular diploma, or, alternatively, many states routinely award "special diplomas" or "certificates of completion," which indicate that students met graduation standards that differed from those applied to regular education students. Figure 5-3 indicates the extent to which students in various disability categories received regular high school diplomas.

Three-fourths of graduates with disabilities (75%) received regular diplomas. This compares with state reports to the U.S. Department of Education (1989) that 78% of graduates received regular diplomas. NLTS data indicate that the percentage of graduates who received regular diplomas ranged from 92% of those with speech impairments to 47% of graduates with mental retardation and one-third of graduates with multiple impairments.

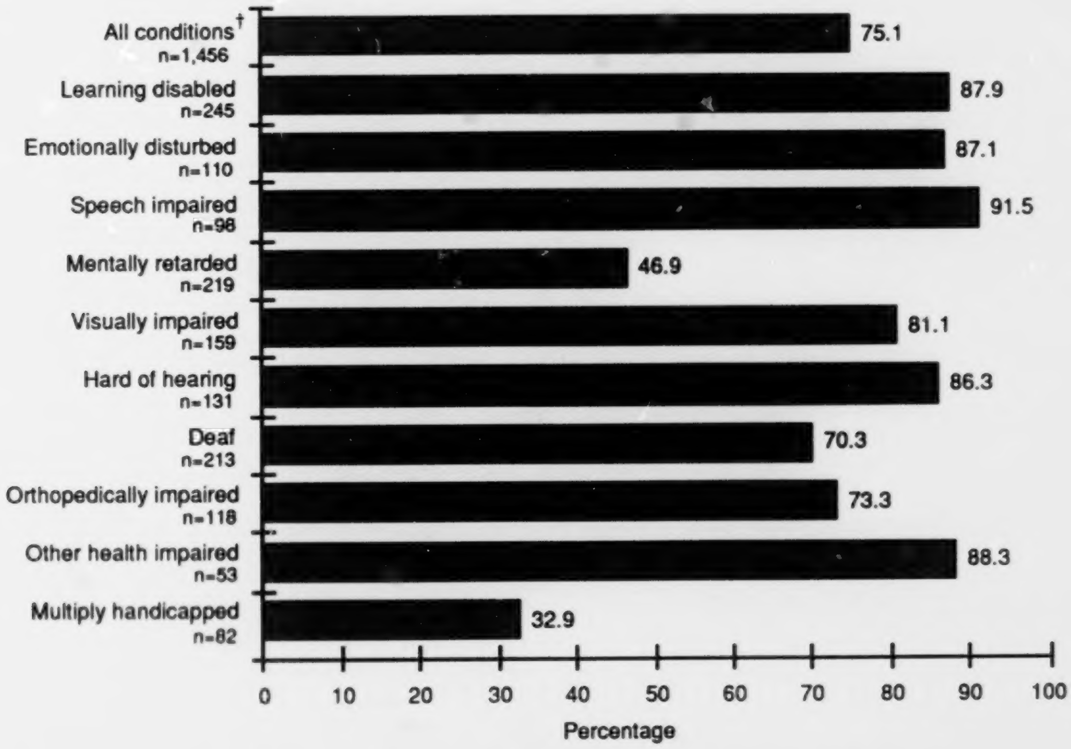

FIGURE 5-3 GRADUATES WITH DISABILITIES WHO RECEIVED REGULAR DIPLOMAS

† "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases.

Source: Students' school records for their most recent school year.

Comparisons with the General Population of Youth

To interpret the findings regarding modes of school leaving for students with disabilities, it is useful to have a benchmark against which to compare them. The NLTS has calculated graduation and dropout rates for a sample of youth from the general population using data from the National Longitudinal Survey of Youth (NLSY; U.S. Department of Labor). To be comparable to the NLSY, NLTS estimates were recalculated only for youth aged 15 to 20, which virtually eliminated youth with disabilities who aged out of school. Also, the NLTS recalculations defined students suspended or expelled as dropouts, as was done in the NLSY. These calculations permit comparisons between youth with disabilities and both the general population of youth and youth in the general population who had the same distribution as disabled youth on selected demographic factors, including gender, head-of-household education, and ethnicity. (See Appendix A for a discussion of the selection and weighting of the NLSY comparison groups.)

Table 5-1 presents the comparisons of graduation and dropout rates for (1) youth with disabilities, based on the NLTS; (2) youth with demographic characteristics similar to those of youth with disabilities, based on reweighted data from the NLSY; and (3) the general population of youth, based on the NLSY.

Table 5-1

COMPARISON OF GRADUATION AND DROPOUT RATES FOR YOUTH WITH DISABILITIES AND THE GENERAL POPULATION OF YOUTH

	Percentage of Youth Aged 15-20 Leaving Secondary School in a 2-Year Period Who Were:				
Youth Characteristics	Graduates	Dropouts	Ageouts	S.E.	N
Youth with disabilities	57.1	42.9	<.1	2.6	1,620
Youth in the general population with demographic characteristics similar to youth with disabilities	68.4	31.6	0.0	.9	6,595
Youth in the general population (total)	75.6	24.4	0.0	.8	6,595

Source: For youth with disabilities: NLTS parent interviews and students' school records for their most recent school year. For the general population of youth: NLSY youth interviews.

These comparisons show that youth with disabilities who were out of secondary school were significantly less likely to be graduates than youth in general. Of youth with disabilities aged 15 to 20 who had been out of secondary school up to 2 years, 57% were graduates, compared with 76% of youth in the general population ($p<.001$). When demographic differences were accounted for, youth with disabilities still had a significantly lower graduation rate: 57% compared with 68% for youth who were similar in selected demographic characteristics ($p<.001$).

Dropout rates were correspondingly higher for youth with disabilities than for the general population. Of youth aged 15 to 20 who were out of secondary school, 43% of those with disabilities were dropouts (including those suspended or expelled), compared with 24% of youth in the general population ($p<.001$) and 32% of youth who were comparable on selected demographic characteristics ($p<.001$). Thus, the problem of dropping out of school was even more pervasive for students with disabilities than for students as a whole; however, a sizable part of the difference was explained by demographic factors.

Reported Reasons for Dropping Out

Although exiters with disabilities dropped out of school at a higher rate than their nondisabled peers, their reasons for dropping out generally were the same. For students in the general population, the major reasons cited for dropping out include poor academic performance and not liking school (e.g., Ekstrom et al., 1986; Barro and Kolstad, 1986; CES, 1986; Rumberger, 1983). NLTS data found similar explanations provided by parents for students with disabilities, as shown in Table 5-2.

The reasons most commonly cited by parents for youth with disabilities dropping out of school were that they did not like school (30%) and/or were not doing well in school (28%). These rates compare with a rate of 33% for each of these responses given by high school students in the general population who had dropped out after their sophomore year (Ekstrom et al., 1986). These findings are consistent with studies of special education dropouts in California and Florida (Jay and Padilla, 1987; Project Transition, 1986).

In the California study, educators described dropouts from special education as students who were failing in school, were not well integrated socially, had poor attendance, and did not see school as relevant to their lives. Although getting married or having a child was a fairly uncommon reason reported for dropping out for youth with disabilities as a whole (8%), it was the reason reported by parents of 23% of female students,but only 1% of male students who had dropped out ($p<.05$).

Table 5-2

PARENT REPORTS OF REASONS FOR DROPPING OUT BY YOUTH WITH DISABILITIES

Reasons for Dropping Out	All Conditions	Primary Disability Category: Learning Disabled	Emotionally Disturbed	Speech Impaired
Percentage of dropouts reported by parents as leaving school because they:				
Were not doing well in school	28.1 (5.6)	32.7 (7.3)	19.1 (5.8)	26.3 (8.9)
Didn't like school/bored	30.4 (5.7)	31.2 (7.2)	32.3 (6.9)	24.9 (8.7)
Had behavior problems	16.6 (4.6)	14.4 (5.4)	26.8 (6.5)	13.6 (6.9)
Needed/found a job	9.4 (3.6)	10.9 (4.8)	5.0 (3.2)	12.1 (6.6)
Got married/had a child	7.8 (3.3)	8.9 (4.4)	5.8 (3.4)	6.7 (5.0)
Didn't get into program wanted	3.3 (2.2)	5.1 (3.4)	1.2 (1.6)	.0 (.0)
Illness or disability	5.2 (2.8)	2.8 (2.5)	6.9 (3.7)	7.7 (5.4)
Moved	1.2 (1.4)	.0 (.0)	.7 (1.2)	5.5 (4.6)
Had friends who dropped out	.4 (.8)	.4 (.9)	.0 (.0)	.0 (.0)
Other	32.8 (5.9)	38.5 (7.5)	28.0 (6.6)	19.3 (7.9)
N	363	88	93	44

Note: Standard errors are in parentheses.

Source: Parent interviews. "All conditions" includes dropouts in all 11 disability categories; data are reported separately only for categories with at least 30 cases. Percentages do not sum to 100 because more than one reason could have been given.

Who Dropped Out of School?

The analysis of dropout behavior presented thus far has focused on youth who left school and assessed the extent to which they graduated, dropped out, aged out, or were suspended or expelled. For younger students, however, choices about school participation are not between graduating and dropping out, but between staying in school and dropping out. Here, we expand our analysis of dropout behavior by comparing dropping out with school persistence and examining characteristics that distinguish youth who chose those different paths. For our purposes, school persisters were those who, at the end of their most recent school year, were still in school, or students who had stayed in school until they graduated or aged out.

Table 5-3 indicates the percentage of students who were in secondary special education in the 1985-86 school year and who were still in school or exited by various means by 1987. From this perspective, recent dropouts were a much smaller percentage of youth with disabilities. Two-thirds of youth still were enrolled in school at the end of the 1986-87 school year. Graduates constituted 18% of youth, while ageouts and those suspended or expelled were 2% and 1% of youth, respectively. Youth who had dropped out accounted for 11% of youth with disabilities. Although the dropout rate was highest for students who were in 11th grade in their most recent school year (14%), differences in the percentage of dropouts by grade level were not statistically significant.

Considerable research has focused on identifying the characteristics of students who drop out of school. Such characteristics can be considered risk factors that would permit educators to target dropout prevention activities to students most likely to leave school prematurely. However, most of these efforts have focused on the general student population, rather than on students with disabilities. (See, for example, Ekstrom et al., 1986; Hendrick, MacMillan, and Balow, 1989; Rumberger, 1983 and 1987; Fetters, Brown, and Owings, 1984; Jones et al., 1986; Barro and Kolstad, 1986; Bachman, Green, and Wirtanen, 1971; U.S. General Accounting Office, 1986; Peng and Takai, 1987; U.S. Bureau of the Census, 1987). Here, we consider whether the characteristics or risk factors identified for dropouts as a whole also apply to students with disabilities who drop out of school.

The conceptual framework presented in Chapter 1 depicts broad categories of factors that we hypothesize to be related to school completion. Elaborating on this model, we suggest that school completion is an extension of a student's school performance, as discussed in Chapter 4. Hence, measures of school performance, particularly course failure and absenteeism, are hypothesized to have powerful relationships to dropout behavior (Raber, 1990; Ekstrom et al., 1986), as depicted in Figure 5-4. Consistent with parent reports of reasons for dropping out, dropouts are hypothesized to be students who were not doing well in school, who did not like school, and, therefore, who did not attend regularly.

Table 5-4 presents data regarding these relationships. We see that the percentage of youth who dropped out of school rather than persisting increased markedly as absenteeism increased. For example, only 5% of students who were absent 10 days or fewer in their last school year dropped out, compared with 10% of those absent 21 to 30 days and 27% of those absent more than 30 days (p<.001). Similarly, the dropout rate was significantly higher for students who had failed a course in their most recent school year (17%) than for students who passed all their courses (6%; p<.001).

Table 5-3

STATUS AT THE END OF THE 1986-87 SCHOOL YEAR OF STUDENTS WHO HAD BEEN IN SECONDARY SPECIAL EDUCATION IN 1985-86

	Percentage of Students Who Were:					
Student Characteristics	In School	Graduates	Ageouts	Dropouts	Suspended/ Expelled	N
Total	67.1 (1.2)	18.4 (1.0)	2.5 (.4)	10.7 (.8)	1.3 (.3)	7,974
Primary disability category						
Learning disabled	68.6 (2.0)	19.2 (1.7)	.9 (.4)	10.1 (1.3)	1.2 (.5)	1,144
Emotionally disturbed	62.3 (2.6)	15.7 (1.9)	1.3 (.6)	18.6 (2.0)	2.0 (.7)	722
Speech impaired	75.5 (2.7)	15.3 (2.2)	1.2 (.7)	6.9 (1.6)	1.0 (.6)	561
Mentally retarded	64.2 (1.9)	17.8 (1.5)	5.9 (.9)	10.7 (1.2)	1.3 (.5)	1,125
Visually impaired	67.7 (3.0)	22.4 (2.6)	4.4 (1.3)	4.9 (1.4)	.5 (.5)	841
Hard of hearing	67.0 (3.1)	23.8 (2.8)	4.0 (1.3)	4.8 (1.4)	.3 (.4)	742
Deaf	57.8 (2.7)	30.2 (2.5)	7.0 (1.4)	4.0 (1.1)	1.0 (.6)	893
Orthopedically impaired	65.0 (3.1)	26.3 (2.8)	2.8 (1.1)	5.0 (1.4)	.9 (.6)	715
Other health impaired	70.7 (3.2)	19.2 (2.8)	2.6 (1.1)	7.4 (1.8)	.2 (.3)	456
Multiply handicapped	74.6 (3.1)	8.2 (1.9)	12.7 (2.4)	3.7 (1.3)	.8 (.6)	678
Deaf/blind	50.0 (6.8)	21.5 (5.6)	24.6 (5.9)	3.9 (2.6)	0.0 —	97
Grade level in 1986-87:						
7 or 8	90.5 (2.9)	NA	.1 (.3)	8.0 (2.7)	1.4 (1.2)	571
9	86.2 (2.6)	NA	.1 (.2)	12.0 (2.5)	1.7 (1.0)	891
10	87.9 (2.9)	NA	.2 (.3)	10.2 (2.7)	1.7 (1.2)	972
11	79.7 (2.9)	6.0 (1.7)	.1 (.2)	13.7 (2.5)	.5 (.5)	1,010
12	7.9 (1.6)	85.4 (2.1)	1.8 (.8)	4.4 (1.2)	.6 (.5)	1,414
Unassigned to grade level	71.1 (3.4)	10.1 (2.3)	7.9 (2.0)	8.8 (2.1)	2.2 (1.1)	995

Note: Standard errors are in parentheses.

Source: Parent interviews and students' school records.

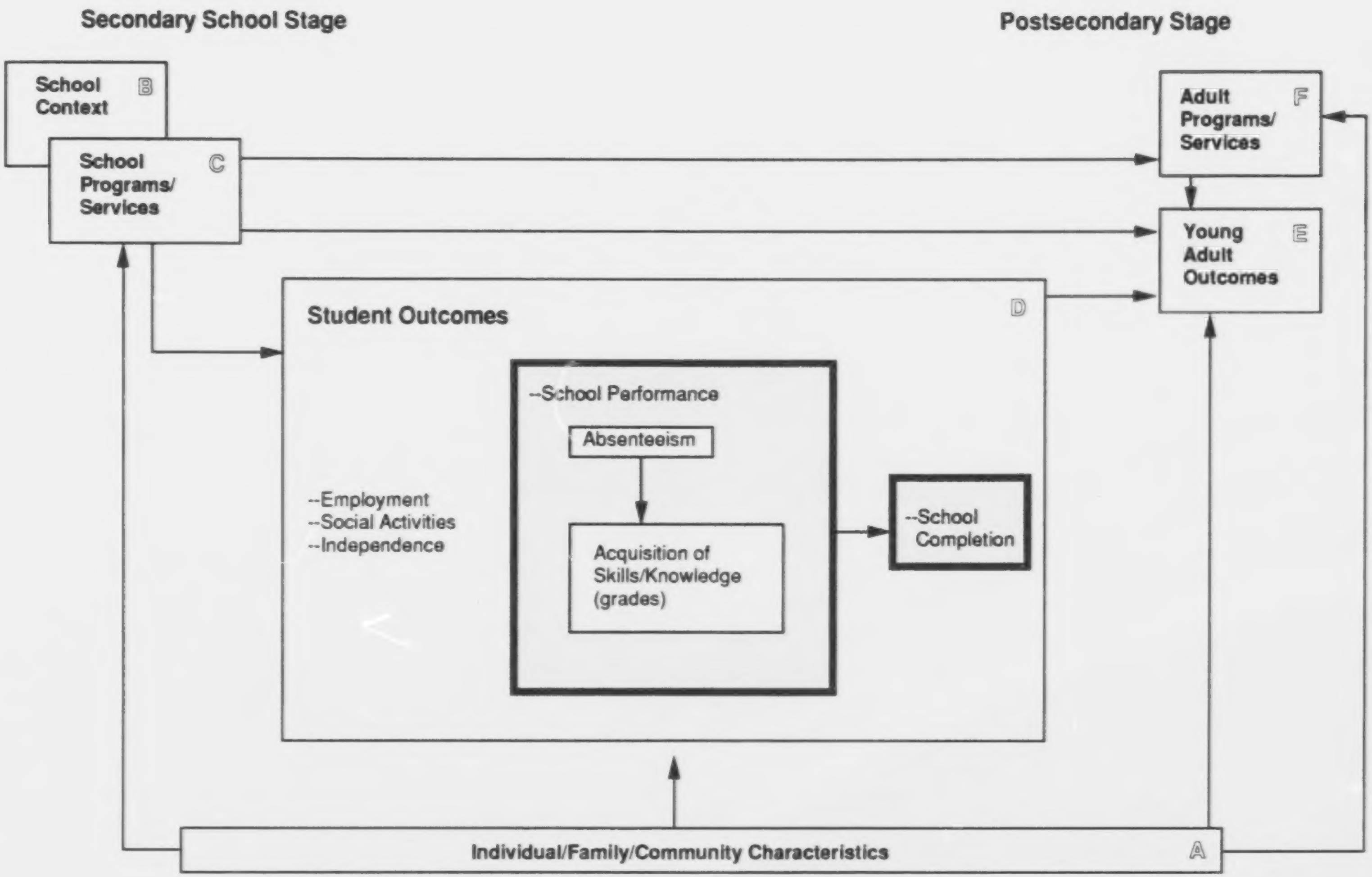
Secondary School Stage
Postsecondary Stage
School Context B
School Programs/ Services C
Adult Programs/ Services F
Young Adult Outcomes E
Student Outcomes D
--School Performance
Absenteeism
Acquisition of Skills/Knowledge (grades)
--School Completion
--Employment
--Social Activities
--Independence
Individual/Family/Community Characteristics A

FIGURE 5-4 INTERRELATIONSHIPS AMONG ASPECTS OF SCHOOL PERFORMANCE AND SCHOOL COMPLETION

Table 5-4

VARIATIONS IN DROPOUT RATE BY SCHOOL PERFORMANCE MEASURES FOR YOUTH WITH DISABILITIES

School Performance in Most Recent Year	Students Who Dropped Out		
	%	S.E.	N
Days absent from school			
≤10	5.1	1.0	2,972
11 to 20	8.2	1.8	1,156
21 to 30	10.5	3.0	457
>30	26.9	4.4	520
Student failed one or more courses			
Yes	16.7	2.2	1,184
No	5.9	.9	4,410

Source: School performance data are from students' school records for their most recent school year. Dropout data are from school records or parent interviews.

As an extension of school performance, we would expect that dropout decisions would be related directly to the student characteristics and behaviors that were analyzed in relation to school performance in Chapter 4. Thus, we expect direct relationships between these factors and school completion, and indirect effects on dropping out through their relationships to course failure and absenteeism, as shown in Figure 5-5. Factors expected to relate to school completion in ways similar to school performance are discussed below. Data regarding these relationships are presented in Tables 5-5 through 5-7.

Disability Characteristics

- *Functional ability.* Chapter 4 demonstrated mixed relationships between functional abilities and various measures of school performance. For example, higher-functioning youth were absent less from school and were less likely to be retained in grade than lower-functioning youth, but were significantly more likely to have received a failing grade. Regarding school completion, no significant differences in the likelihood of dropping out were apparent for youth with various levels of functional abilities, as shown in Table 5-5.
- *IQ.* Consistent with NLTS findings regarding lower absenteeism and a lower likelihood of grade retention for youth with higher IQs, Table 5-5 indicates that youth with above-average IQs were significantly less likely to drop out than youth at levels other than that designated as severely mentally retarded (e.g., 2% vs. 10% to 11%; p<.01). However, IQ did not show a significant independent effect on dropping out in multivariate analyses, as discussed later.

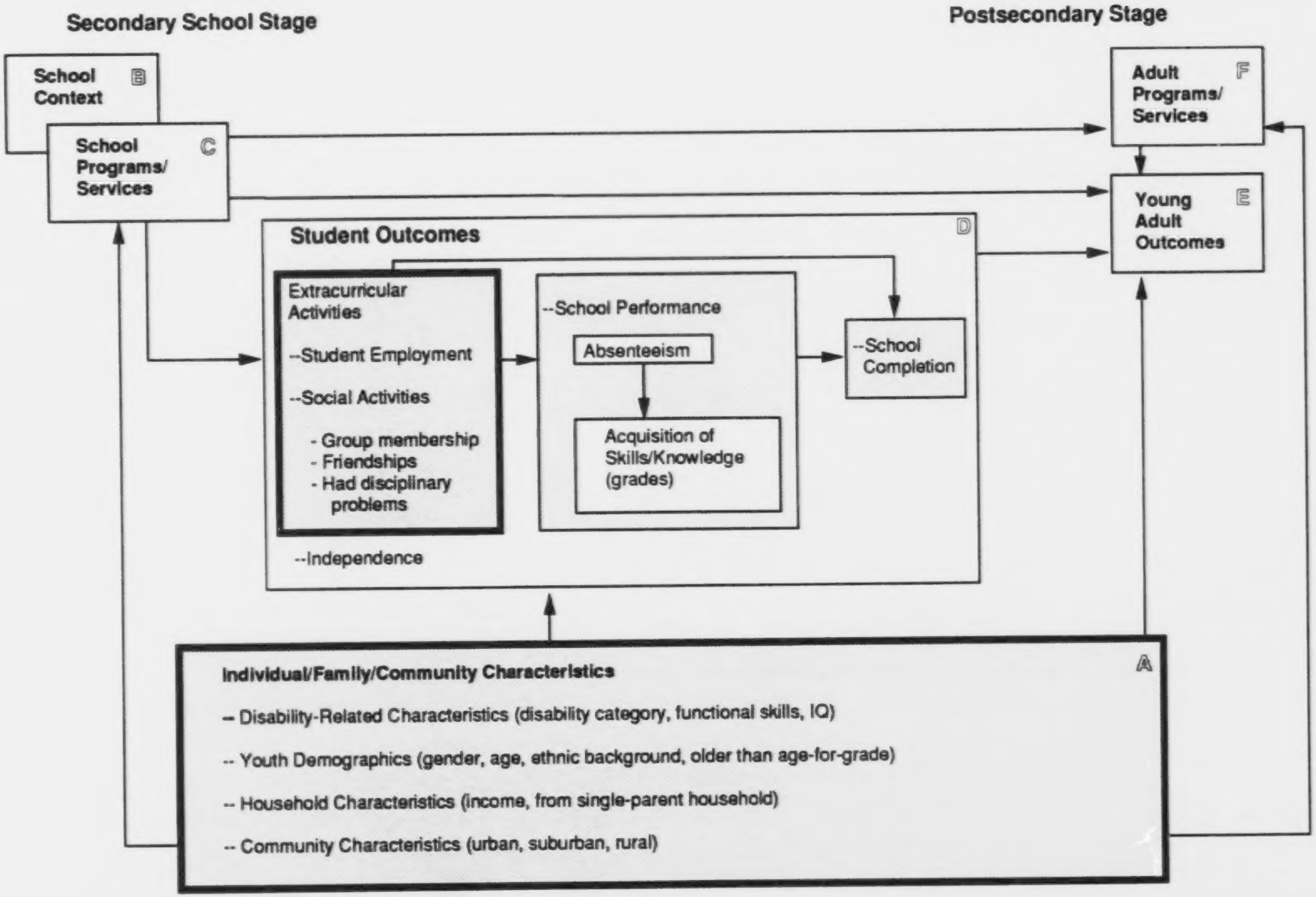
Secondary School Stage
Postsecondary Stage
School Context B
School Programs/ Services C
Adult Programs/ Services F
Young Adult Outcomes E
Student Outcomes D
Extracurricular Activities
--Student Employment
--Social Activities
- Group membership
- Friendships
- Had disciplinary problems
--School Performance
Absenteeism
Acquisition of Skills/Knowledge (grades)
--School Completion
--Independence
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, older than age-for-grade)
-- Household Characteristics (income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 5-5 THE RELATIONSHIP OF STUDENT, HOUSEHOLD, AND COMMUNITY FACTORS TO SCHOOL COMPLETION

Table 5-5

VARIATIONS IN DROPOUT RATES BY FUNCTIONAL ABILITY

Disability-Related Characteristics	Students Who Dropped Out %	S.E.	N
Self-care ability scale score[†]			
High (11 or 12)	9.9	1.0	5,226
Medium (8 to 10)	5.6	2.1	921
Low (3 to 7)	6.0	2.6	537
Functional mental skills scale score[§]			
High (15 or 16)	9.4	1.2	3,103
Medium (9 to 14)	10.5	1.5	2,542
Low (4 to 8)	6.6	2.1	896
IQ			
>110	1.7	2.4	278
91 to 110	10.6	2.4	956
76 to 90	10.0	1.8	1,305
52 to 75	11.3	1.8	1,188
<52	5.2	2.0	563

[†] Parents rated on a 4-point scale youths' abilities to dress themselves, feed themselves, and get around outside the home. Ratings were summed to create a scale ranging from 3 to 12.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: IQ scores are from students' school records. Other data are from parent interviews.

Individual, Household, and Community Characteristics

- *Age in student's last year in school.* Younger students (e.g., ages 15 or 16) were less likely to drop out than those who were somewhat older and nearing the age at which nondisabled students were preparing for graduation, as shown in Table 5-6 (5% vs. 13% or 14%; p<.001). Students who were still in secondary school beyond age 20 were less likely to drop out of school than students between 17 and 20 (7% vs. 13% or 14%; p<.01); older students were most likely to age out. Age did not have a significant independent relationship to dropping out in multivariate analyses, as presented later in this chapter.
- *Ethnic background.* Table 5-6 reveals no significant differences in dropout rates among white, black, and other students in this bivariate analysis. However, multivariate analyses presented later in this chapter suggest a significantly lower dropout rate for minorities, controlling for SES and other factors.
- *Socioeconomic status.* Research for the general student population indicates that students from households with lower socioeconomic status have a higher propensity to drop out than students from more affluent households (Ekstrom et al., 1986). Table 5-6 suggests the same relationship for students with disabilities. Those from households with annual incomes of less than $25,000 were significantly more likely to dropout than other students (11% vs. 6%; p<.01). Similar results were revealed for those from single-parent households compared with students from two-parent

for those from single-parent households compared with students from two-parent families (12% vs. 8%; p<.05), consistent with findings for students as a whole (Bachman, Green, and Wirtanen, 1971; Ekstrom et al., 1986). Although the dropout rate was slightly lower for youth in suburban communities than those in urban or rural areas, consistent with data for the general student population (U.S. General Accounting Office, 1987; Peng, 1983), the differences were not statistically significant. None of these factors had significant independent relationships to dropping out in multivariate analyses, presented in a later section.

Although research regarding the general student population indicates that males have a higher dropout rate than females (Ekstrom et al., 1986), no significant difference for youth with disabilities is revealed in Table 5-6.

Table 5-6

VARIATIONS IN DROPOUT RATES BY STUDENTS' INDIVIDUAL, HOUSEHOLD, AND COMMUNITY CHARACTERISTICS

	Students Who Dropped Out		
Characteristics	%	S.E.	N
Individual characteristics			
Youth's age in most recent school year			
< 16	5.2	1.1	2,266
17 or 18	13.9	1.4	2,947
19 or 20	13.0	1.6	2,087
>20	6.9	1.6	898
Gender			
Male	10.6	1.0	4,993
Female	9.9	1.4	3,191
Ethnic background			
White	10.2	1.1	4,450
Black	9.3	1.8	1,672
Other	8.5	2.6	947
Household characteristics			
Annual income			
< $25,000	11.3	1.3	3,484
≥ $25,000	5.7	1.1	2,649
Youth was from:			
Single-parent household	11.9	1.7	2,285
Two-parent household	7.7	1.0	4,409
Community characteristics			
Student attended school in:			
Urban area	10.8	1.7	2,480
Suburban area	7.6	1.3	2,190
Rural area	9.6	1.4	1,407

Source: Individual and household characteristics are from parent interviews. Urbanicity is from Quality Education Data. Dropout data are from students' school records or parent interviews.

Student Behaviors

Chapter 4 demonstrated strong relationships between several behaviors of students and measures of their school performance. Relationships of such factors to school completion are shown in Table 5-7 and are highlighted below:

- *Whether the youth had disciplinary problems.* Youth who had had disciplinary problems were shown in Chapter 4 to have consistently lower school performance than students who had not had such problems. Research on the general student population suggests that disciplinary problems also relate strongly to decisions to leave school without graduating (Ekstrom et al., 1986; NCES, 1989; Finn, 1989). A similar relationship for students with disabilities is evident in Table 5-7, which shows that 28% of students who had had disciplinary problems dropped out of school, compared with 4% of students who had not (p<.001).
- *Group membership.* Raber (1990) reports that more than twice as many persisters participated in nonathletic extracurricular activities (33%) than did dropouts (14%) in one Eastern county school district. Table 5-7 confirms a strong relationship between group membership in the previous year and the decision to drop out in that year. Only 2% of group members dropped out, compared with 8% of students without such affiliations (p<.001).

Table 5-7

VARIATIONS IN DROPOUT RATES BY STUDENT ACTIVITIES AND BEHAVIORS

	Students Who Dropped Out		
Student Behaviors	%	S.E.	N
Student had disciplinary problems			
Yes	28.5	3.3	786
No	4.4	.7	5,989
Youth belonged to school/community group in the past year			
Yes	2.4	.8	2,419
No	7.7	1.1	3,082
Youth saw friends:			
Less than once per week	5.0	1.8	1,098
Once per week	6.9	2.4	748
2 or 3 days per week	6.3	1.6	1,363
4 or 5 days per week	3.8	1.6	756
6 or 7 days per week	6.0	1.4	1,442
Youth had a job in the past year			
Yes	7.2	1.1	3,144
No	4.2	1.1	2,488
Youth was older than typical age-for-grade			
Yes	10.7	1.1	3,870
No	5.2	1.6	1,117

Source: Parent interviews.

- *Youth was older than the typical age-for-grade* (suggesting that he/she repeated an earlier grade). Prior research has suggested that being retained in grade substantially increases the risk of dropping out later for students in the general population (Bachman, Green, and Wirtanen, 1971; Marion and Coladarci, 1990; Gampert, 1990; Raber, 1990), and for students with disabilities (Zigmond, 1987). Table 5-7 confirms this relationship. Students who were older than the typical age for their grade level were more than twice as likely as others to drop out of school (11% vs. 5%; $p<.01$). This relationship falls just short of statistical significance in multivariate analysis.

  No significant differences in the likelihood of dropping out were found related to whether students had had a job in the year in which they dropped out or to the number of days per week they saw friends outside of school.

Multivariate Analysis of Student Characteristics and Behaviors Related to Dropping Out

Because several of these student characteristics and behaviors are interrelated, a multivariate analysis is the appropriate approach to determine their independent relationships to dropping out. Logit analysis was used to identify student characteristics and behaviors related to whether students dropped out of school or persisted in school.[*] Persisters included those who were still in school or who had graduated or aged out. Those suspended or expelled were eliminated from this analysis because they neither chose to drop out nor could they choose to persist. Students who were 22 years old or older in their most recent school year also were eliminated from the analysis because they would have been 21 years old at the time of sampling for the NLTS and most would have aged out; leaving them in the analysis would generate potentially misleading results regarding the relationship between student age and dropping out.

The multivariate analysis is statistically significant in explaining the variation in the probability of students dropping out ($\chi^2=288$; $p<.001$). Table 5-8 presents the relationships of student behaviors, demographic characteristics, and disability-related factors to whether students dropped out or persisted in school.

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[*] Not all students were included in the multivariate analysis because they did not have complete data. Table D5-1 in Appendix D provides the unweighted means for variables in the multivariate analysis as well as their correlations to the dependent variable for the total sample of students and for those included in the dropout analysis. It demonstrates that students included in the multivariate analysis had higher functional abilities and IQ and were significantly less likely to be severely impaired than students in the full sample, because the multivariate analysis includes a measure of whether students were older than the typical age for their grade level, eliminating students not assigned to a grade level. Chapter 4 pointed out that focusing on students assigned to a grade level "creams" the special education student population. Variables related to functional ability differences also differ between the full sample and the model (e.g., participation in vocational education, percentage of time in regular education). Correlations between independent variables and the dependent variable, however, are very similar for the two samples. Even so, conservatively, these findings can be considered as generalizing to students who were assigned to a grade level.

School Performance

As suggested earlier, poor school performance, as measured by course failure and high absenteeism, had a powerful relationship to the probability of dropping out of school. Receiving a failing grade is estimated to increase the probability of dropping out by 7 percentage points, independent of other factors in the model. Similarly, higher absenteeism also independently relates to a higher probability of dropping out (p<.001). For example, the probability of dropping out was estimated to be 2 percentage points higher for students who were absent 18 days rather than 8 days.

Although this independent relationship of increased absenteeism to dropping out was not large, absenteeism and the rate of course failure were interrelated, in that students who failed courses also had a higher average number of days absent from school. In Chapter 4, we reported that the average number of days absent for students failing courses was 21 days, compared with 12 days for students not experiencing course failure. If we include these interrelationships among absenteeism and course failure in our analysis of dropping out, their effects are noticeably larger. The probability of dropping out is estimated to be 11 percentage points higher for students who were failing grades, with the associated higher absenteeism, than for students who were not failing and who had an associated lower number of days absent from school.

Student Disability-Related Factors

Few significant differences in the estimated dropout rate were noted for youth in different disability categories, compared with students with learning disabilities, when other factors in the analysis were controlled. Only the dropout rate for youth who were severely impaired was significantly different from the rate of youth classified as learning disabled (p<.05). These findings suggest that the marked variations in dropout rates for youth in different disability categories are explained more by the behaviors of youth in those categories than by the nature or severity of disability per se. For example, relatively high rates of dropping out among youth classified as emotionally disturbed might be explained by their propensity to have disciplinary problems, a manifestation of disability. When that behavioral characteristic is included in the analysis, there is little variation explained independently by being classified as emotionally disturbed. Similarly, IQ and functional ability scales were unrelated to dropping out, independent of disability category and other factors in the analysis.

Student Demographics

Demographic characteristics of students were not strongly related to the probability of dropping out. Only enthnicity was significantly related; minority students were less likely than nonminorities to drop out of school, independent of other factors, although the estimated difference was only 2 percentage points (p<.05).

Table 5-8

ESTIMATED CHANGE IN THE RATE OF DROPPING OUT ASSOCIATED WITH STUDENT CHARACTERISTICS AND BEHAVIORS

	Change in Estimated Rate of Dropping Out		
Student/Behavioral Characteristics	Coefficient	% Points	For Increment
Student performance			
Student absenteeism	.04***	1.6	18 vs. 8 days
Student failed a course	1.22***	6.8	Yes vs. no
Disability-related characteristics			
Youth classified as:[†]			
Emotionally disturbed	.31	2.1	Emotionally disturbed vs. learning disabled
Speech impaired	-.20	-1.1	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-.38	-1.9	Mentally retarded vs. learning disabled
Deaf	-.45	-2.2	Deaf vs. learning disabled
Hard of hearing	-1.41	-4.7	Hard of hearing vs. learning disabled
Visually impaired	.01	.0	Visually impaired vs. learning disabled
Orthopedically impaired	-1.08	-4.0	Orthopedically impaired vs. learning disabled
Other health impaired	-.65	-2.9	Other health impaired vs. learning disabled
Severely impaired (e.g., SMR, multiply handicapped)	-1.83*	-5.2	Severely impaired vs. learning disabled
Functional mental skills scale	-.06	1.0	High (16) vs. medium (12)
Self-care skills scale	.05	.5	High (11) vs. medium (8)
IQ score	.00	.2	100 vs. 80
Demographic characteristics			
Age in most recent school year	.13	2.0	19 vs. 15
Youth was male	-.43	-1.8	Male vs. female
Youth was minority	-.74*	-2.6	Minority vs. nonminority
Household characteristics			
Household income scale	-.02	-.2	$38,000-$50,000 vs. <$12,000
Youth was from single-parent household	.26	1.1	Yes vs. no
Community characteristics			
Youth attended school in following area:			
Urban	-.10	-.4	Urban vs. suburban
Rural	.47	2.2	Rural vs. suburban
Student behaviors			
Has had disciplinary problems	1.77***	14.2	Yes vs. no
Belonged to school/community group in year in which student dropped out	-1.00**	-3.8	Yes vs. no
Frequency of seeing friends (6 category scale)	-.08	-.6	4 or 5 days/week vs. once/week
Youth was older than typical age-for-grade	.69	2.4	Yes vs. no
Had a job in year in which student dropped out	-.03	-.1	Yes vs. no

---

[†] Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Contrary to relationships found in bivariate analyses, multivariate analysis reveals that, controlling for other factors, indicators of lower SES (i.e., household income and being from a single-parent household) were not significantly related to dropping out, independent of other factors. This may result from the fact that the analysis includes behaviors more often associated with students from lower SES households. For example, 35% of students from low-income households received a failing grade, compared with 30% for students from higher-income households. In multivariate analyses, the portion of the dropout rate for low-income students that was attributable to this behavior is partialled out, leaving little variation to be explained by SES.

Student Behaviors

As demonstrated in bivariate analysis, having had disciplinary problems was powerfully related to dropping out. In fact, disciplinary problems accounted for a larger difference in the estimated probability of dropping out than was found for any other single variable in the analysis. Independent of other factors, we estimated the probability of dropping out to be 14 percentage points higher for students who had had disciplinary problems than for those who had not, independent of other factors. However, this direct relationship to dropping out underestimates the total relationship between disciplinary problems and dropping out. In Chapter 4, we reported that having disciplinary problems had significant direct relationships to both increased absenteeism and an increased probability of course failure. The estimated number of days absent for students with disciplinary problems was 9 days higher than for those without such problems. Similarly, the estimated course failure rate for those with disciplinary problems was 12 percentage points higher than for students without such problems. If these indirect relationships to dropping out, through absenteeism and course failure, are added to the direct effects of having had disciplinary problems, an even greater difference in the probability of dropping out is apparent. Students who had had disciplinary problems, along with the associated higher absenteeism and course failure rates, were estimated to have a probability of dropping out that was 21 percentage points higher than students who had had no disciplinary problems, with the associated lower absenteeism and course failure probabilities.

Belonging to a school or community group appears to have a dampening effect on the probability of dropping out, both directly and indirectly. Students who belonged to groups were estimated to have a dropout rate that was 4 percentage points lower than students who did not have group affiliations. As with disciplinary problems, this direct relationship underestimates the total relationship of affiliations to dropping out. In Chapter 4, we reported that students who belonged to groups had significantly lower absenteeism and a lower probability of course failure than nonmembers. Group members were estimated to be absent an average of 3 days less than nonmembers; members were estimated to have a course failure probability of 5 percentage points less than nonmembers. When these indirect relationships are assessed along with the direct relationship to dropping out, the probability of dropping out for group members was estimated to be 5 percentage points lower than the probability for nonmembers, adding support to the theory that social bonds with the school, as evidenced by group affiliations, contribute to improved school performance and a greater likelihood of school completion.

The frequency with which youth saw friends outside of school, whether they had a job in the year in which they dropped out, and whether they were older than the typical age for their grade level did not have significant independent relationships to dropping out of school.

School Factors Related to Dropping Out

The analysis of dropout behavior thus far has addressed only student characteristics and behaviors. Are there school factors that also have significant relationships to dropout behavior? Chapter 4 suggested that school factors can significantly affect students' school performance. Research on dropouts in the general student population has suggested that school factors also can either contribute to or inhibit the likelihood of students' dropping out of school (e.g. Wehlage and Rutter, 1986; U.S. General Accounting Office, 1987; Vito and Connel, 1988). Here we focus on these potential relationships, as illustrated in Figure 5-6. Table 5-9 highlights the relationships between selected school factors and dropout behavior among students with disabilities.

School Characteristics and Policies

- *School size.* Research suggests that school size affects school climate, which in turn affects students' affiliation with the school (Pittman and Haughwout, 1987; Gump, 1978). Data presented in Chapter 4 supported this contention, in that students in larger schools were significantly more likely than those in smaller schools to have failed a course. We see a similar relationship to the dropout rate in Table 5-9. Students who attended schools with fewer than 500 students were significantly less likely to drop out than those in schools with between 500 and 1,100 students, the size range that encompasses the average school attended by youth with disabilities (6% vs. 10%; p<.05). This relationship was not significant in multivariate analysis, however, as discussed in the following section.

  Whether youth attended special schools for students with disabilities was not significantly related to the dropout rate. Further, no statistically significant relationships were revealed between the likelihood of dropping out of school and whether students attended schools that reported they expected mainstreamed students to keep up without help or routinely offered various kinds of support to regular education teachers with mainstreamed students.

Students' School Programs

- *Course taking.* Consistent relationships were noted in Chapter 4 between enrollment in occupationally oriented vocational education courses and better school performance. One objective of vocational education is "motivating students to remain in school" (Catterall and Stern, 1986). Table 5-9 provides an indication that it may have had the intended effect for students with disabilities. Students who took occupational training in their most recent school year were significantly less likely to have dropped out of school (8% vs. 12%; p<.05). No significant difference in the dropout rate was found between students who took one or more nonacademic courses, compared with those who did not.

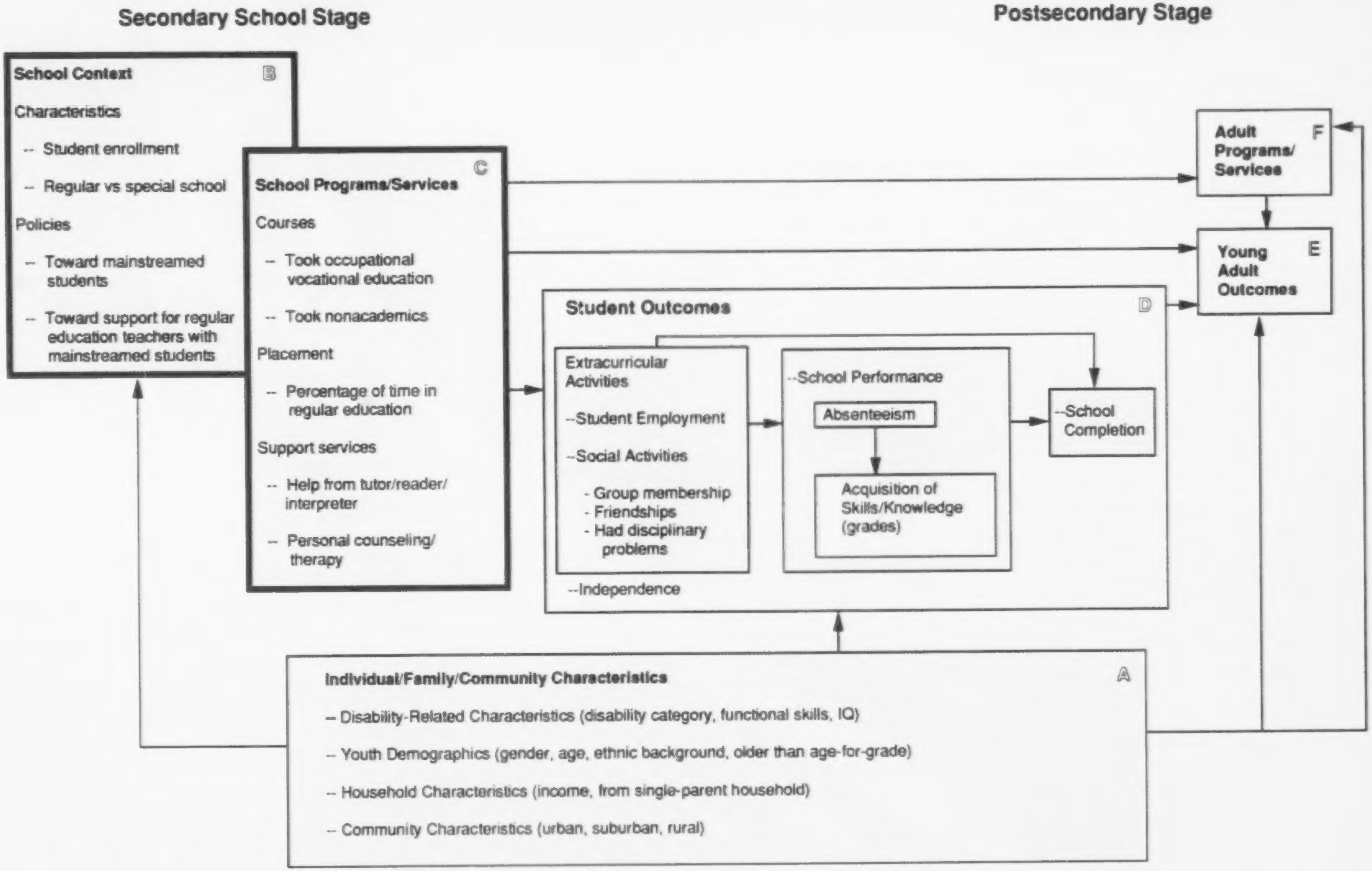
Secondary School Stage
Postsecondary Stage
School Context B
Characteristics
-- Student enrollment
-- Regular vs special school
Policies
-- Toward mainstreamed students
-- Toward support for regular education teachers with mainstreamed students
School Programs/Services C
Courses
-- Took occupational vocational education
-- Took nonacademics
Placement
-- Percentage of time in regular education
Support services
-- Help from tutor/reader/ interpreter
-- Personal counseling/ therapy
Student Outcomes D
Extracurricular Activities
--Student Employment
--Social Activities
- Group membership
- Friendships
- Had disciplinary problems
--Independence
--School Performance
Absenteeism
Acquisition of Skills/Knowledge (grades)
--School Completion
Adult Programs/ Services F
Young Adult Outcomes E
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, older than age-for-grade)
-- Household Characteristics (income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 5-6 THE RELATIONSHIP OF SCHOOL FACTORS TO SCHOOL COMPLETION

Table 5-9
VARIATIONS IN DROPOUT RATES BY SCHOOL FACTORS

School Factors	Students Who Dropped Out %	 S.E.	 N
School characteristics			
Student attended special school			
Yes	7.0	1.8	1,932
No	9.6	.9	5,406
Student enrollment			
500 students or fewer	5.9	1.2	2,497
501 to 1,100 students	9.7	1.4	1,750
>1,100 students	9.0	1.5	2,392
School policies			
School reported expecting mainstreamed students to keep up in regular classes without help			
Yes	8.9	1.7	1,441
No	8.6	1.1	2,664
School reported offering the following support to regular teachers with mainstreamed students:			
Special materials for students			
Yes	8.8	1.3	2,417
No	8.4	1.4	1,687
Inservice training on mainstreaming			
Yes	8.1	1.4	1,917
No	9.0	1.3	2,187
Classroom aides			
Yes	7.5	1.6	1,584
No	9.1	1.2	2,520
Smaller classes			
Yes	10.3	2.9	541
No	8.4	1.0	3,563
Students' school programs			
Student took:			
Occupationally oriented vocational education			
Yes	8.3	1.1	3,458
No	12.0	1.2	4,181
Nonacademic courses			
Yes	8.8	1.1	2,826
No	9.8	2.8	504
Student received:			
Help from a tutor/reader/interpreter			
Yes	4.3	1.5	1,486
No	11.1	.9	6,583
Personal counseling/therapy			
Yes	6.1	2.2	592
No	9.0	1.0	3,453
Percentage of time in regular classes			
0%	8.8	1.7	2,041
1% to 33%	9.3	2.2	794
34% to 66%	11.2	2.3	742
67% to 99%	8.8	2.0	1,073
100%	7.4	2.0	1,064

Source: Student program information is from students' school records. School characteristics and policies are from the Survey of Secondary Special Education Programs.

- *Receipt of support services.* A characteristic of programs that are thought to be effective for youth at risk of dropping out involves a concentration on the needs of the youth that often extend beyond direct instruction (e.g., counseling is provided by 94% of dropout prevention programs studied by the U.S. General Accounting Office, 1987). We would expect students receiving such services to be less likely to drop out than nonrecipients. However, Chapter 4 demonstrated mixed findings regarding such support services when considering school performance. Receiving help from a tutor, reader, or interpreter was not significantly related to better school performance in multivariate analyses, and receiving personal counseling or therapy was consistently related to poorer performance. Table 5-9 provides evidence of more consistent relationships between receipt of support services and lower dropout rates. About 4% of students who received help from a tutor/reader/ interpreter dropped out, compared with 11% of those who did not receive help ($p<.001$). The dropout rate for students who received counseling was not significantly lower than the rate for students who did not in bivariate analysis, but does attain statistical significance in the multivariate analysis presented below.

  No significant relationship was found between the percentage of time students spent in regular education and their probability of dropping out of school.

Multivariate Analysis of School Factors Related to Dropping Out

Using multivariate logit analysis, we analyzed the relationship of these school and program characteristics to students' dropping out rather than persisting in school, controlling for the demographic characteristics, disability-related factors, and behaviors already discussed. This approach allows us to address the question: Given the characteristics and behaviors of students, what school program characteristics related to a lower propensity to drop out of school?

Adding school factors to other student characteristics and behaviors already considered in the multivariate analysis did not significantly alter the explanatory power of the model. We found that none of the measured school characteristics or policies had significant independent relationships to dropping out. However, Table 5-10 indicates that there were statistically significant direct relationships between dropout behavior and three of the factors related to individual students' school programs: students' participation in occupationally oriented vocational education, receipt of tutoring assistance, and receipt of personal counseling.

Controlling for the student characteristics and behaviors included in the analysis, students who took occupationally oriented vocational education in their most recent school year were estimated to have a probability of dropping out that was 3 percentage points lower than students who did not take such vocational training, independent of other factors in the analysis. If we consider the relationship of occupational training to reduced absenteeism and course failure, reported in Chapter 4, the total relationship between training and the dropout rate is marginally greater.

Table 5-10

ESTIMATED CHANGE IN THE RATE OF DROPPING OUT ASSOCIATED WITH SCHOOL FACTORS

School Factors	Change in Estimated Rate of Dropping Out		
	Coefficient	% Points	For Increment
School characteristics			
Attended a special school	.27	1.2	Yes vs. no
Student enrollment	-.00	-.5	1,300 vs. 700 students
School policies			
Mainstreamed students expected to keep up in regular classes without help	.17	.7	Yes vs. no
School provided to regular education teachers with mainstreamed students:			
Special materials for students	-.23	-.9	Yes vs. no
Inservice training	.20	.8	Yes vs. no
Classroom aides	-.00	-.4	Yes vs. no
Smaller classes	.46	2.2	Yes vs. no
Students' school programs			
Students took:			
Ocupationally oriented vocational education	-.60*	-2.6	Yes vs. no
Nonacademic courses	-.31	-1.4	Yes vs. no
Students received:			
Help from tutor/reader/interpreter	-1.00*	-3.2	Yes vs. no
Personal counseling/therapy	-1.04**	-3.2	Yes vs. no
Percentage of time in regular education courses	.00	.4	6 vs. 3 classes

---

* p < .05.
** p < .01.
*** p < .001.

We also note a significant relationship between dropping out and receipt of help from a tutor, reader, or interpreter. Students who received such assistance in their most recent school year were estimated to have a probability of dropping out that was 3 percentage points lower than students who did not receive help, controlling for other factors (p<.05). A similar relationship between receipt of personal counseling and dropping out was found. Those receiving counseling were estimated to have a dropout rate 3 percentage points lower than nonrecipients, independent of other factors in the model (p<.01).

The apparent dampening effects of these school factors on dropout behavior, controlling for other factors in the analysis, offer further support for the notion that bonds between students and their schools are an important element in the "holding power" of schools. Services such as tutoring or counseling may have provided the individualized attention needed to communicate to students that someone in their schools cared about their presence there. Occupational training may have helped students who were unlikely to go on to college to perceive that their secondary school programs were relevant to their futures and beneficial for their long-term prospects.

The separate effects of school factors considered thus far may understate the relative influence on dropout behavior that schools can have when they work to construct an integrated environment and course program supportive of students in school. For example, in Chapter 4, we considered a hypothetical example of white male students classified as learning disabled who had several characteristics that would put them at risk of dropping out (e.g., being older than the typical age-for-grade, living in an urban area, being from a low-income household). In Chapter 4, we learned that such students who attended schools with policies and practices supportive of students with disabilities and whose school programs involved occupational training, nonacademic classes, and tutoring assistance were estimated to be absent for 16 days and were estimated to have a probability of 42% of failing a course. In contrast, if such students attended schools without such policies and practices and had school programs that included only academic classes and no tutoring assistance, their estimated absenteeism would be 18 days and the probability of receiving a failing course grade would be 65%.

We can build on these findings by extending them to their implications for school persistence. The learning disabled students taking occupational and nonacademic courses and receiving tutoring assistance, with their associated lower absenteeism and course failure probabilities, would have an estimated likelihood of dropping out of 3%. In contrast, the students with strictly academic programs and no tutoring assistance, with the associated higher absenteeism and probability of course failure, would have an estimated probability of dropping out of 28%. Hence, school factors that relate significantly to better school performance also may offer possibilities for ameliorating the problem of early school leaving for students with disabilities.

These findings regarding significant relationships between school factors and dropping out can somewhat allay the pessimism that can follow from an exclusive emphasis on student characteristics in analyzing dropout behavior. As discussed in Chapter 4, when the focus is exclusively on the student, it is easy to conclude that schools can do little to moderate poor school performance or the propensity for early school leaving. Recent research has suggested that schools do play an important part in addressing the dropout issue (e.g., Toles, Schulz, and Rice, 1986; Wehlage et al., 1989). The NLTS findings support this view by suggesting that dropping out is not an intractable problem, even for students who demonstrate characteristics making them particularly at risk.

Despite the potential benefits of the school programs identified here, Chapter 3 demonstrated that only a minority of students with disabilities were provided occupational training, tutoring, or personal counseling. Fewer than 6 of 10 students (59%) took occupationally oriented vocational education in their most recent school year, with that percentage being lower among middle school students (35%) than students in 11th or 12th grades (72%; Table 3-7). Only 16% of students were reported as receiving help from a tutor, reader, or interpreter in the previous year, and a similar percentage were reported to have received personal counseling or therapy (Table 3-10). These levels of service indicate that there is much room for expansion of programs that may offer opportunities for reducing the risk of early school leaving for some students.

Dropouts Who Resumed Their High School Educations

Beneath some of the public concern over the dropout rate is the assumption that a student who drops out has prematurely cut short his or her education. However, dropping out of secondary school is not an irrevocable action. Many students later think poorly of their choice; among dropouts in the general student population, 53% later thought dropping out had not been a good decision (Peng, 1983). Dropouts can reconsider their choices and can return to high school, enter alternative educational programs, if available, or earn the equivalent to a high school diploma through GED or similar programs. High school completion, even at a later date, appears to give youth an advantage in later life. Research suggests that dropouts who later complete their high school programs are also more likely later to enroll in postsecondary schools and to be employed full time than are dropouts who do not complete their secondary education (Kolstad and Owings, 1986).

Among dropouts with disabilities, 29% of parents reported that they expected their child to return to secondary school in the coming year. Although the extent of parent expectations for return to secondary school ranged from 19% for students who were hard of hearing to 46% of students who were speech or other health impaired, these differences were not statistically significant because of the small numbers of cases involved. However, there was a significant difference in expectations based on the length of time dropouts had been out of school. Whereas 39% of parents of dropouts who had left school in the previous year expected their child to return to school in the coming year, this expectation was shared by only 18% of parents of dropouts who had been out of school from 1 to 2 years ($p<.05$).

To what extent were parents' expectations for dropouts to continue their secondary education borne out? Research on the general student population using data from the High School and Beyond longitudinal study of the sophomore class of 1980 reported that, 2 years later, 43% of dropouts had enrolled in some kind of program to continue their secondary education (Frase, 1990b). In comparison, for dropouts with disabilities, parents of 21% reported the dropouts had taken classes to earn a high school diploma in the previous year. Part of the difference in the rates of continuation for the general student population and dropouts with disabilities involves the time periods considered. High School and Beyond (HS&B) data indicate continuation rates for a 2-year period; NLTS data are available for the 1-year period before the parent interviews. However, data from the NLTS exiter substudy (described in Chapter 1 and Appendix A), collected when dropouts in selected disability categories had been out of school from 3 to 4 years, show a very small increase in continuation rates after the first year out of high school (discussed in greater detail below). Dropouts with disabilities were much less likely than dropouts from the general student population to have continued their secondary education after dropping out.

Among dropouts with disabilities, the continuation rate for the previous year was twice as high for students who had dropped out in the 1986-87 school year (28%) as for students who had left in the 1985-86 school year (14%), although the difference was not statistically significant because of the small number of cases. This suggests that if dropouts were going to continue their secondary education, they were more likely to do it in the first year after dropping out than to be working toward a high school degree after being out of school for 1 to 2 years.

Of the dropouts who enrolled in high school or GED programs, 20% had earned a degree or diploma from their work at the time of the interview; the remainder either were still enrolled or had discontinued the program. This rate compares with 70% or more completers among youth from the general population who had dropped out between their sophomore and senior years and had later continued their secondary education (Kolstad and Owings, 1986; Frase, 1990a). Once they returned to high school or entered an equivalency program, dropouts with disabilities who had been out of school up to 2 years were as likely to complete the programs as those who had been out of school less than 1 year. If those who completed degrees by 1987 are subtracted from the ranks of the dropouts, the effective dropout rate among exiters with disabilities would be reduced from 32% to 31%.

These NLTS data indicate continuing secondary education only in the first year or two after students dropped out of school. Data from the 1989 NLTS substudy of exiters from secondary school provide information for the third and fourth years after high school for youth who were learning disabled, emotionally disturbed, mildly or moderately mentally retarded, or speech impaired. Using these data, we can determine whether continuation of secondary education was common in those later years after high school.

Among exiters in the selected disability categories, 28% had dropped out of school in the 1985-86 or 1986-87 school year; 17% of those dropouts had pursued their secondary education in the first few years after high school, and 20% of those who took secondary continuation programs actually earned a high school or equivalent degree. By the third or fourth year after high school, the percentage of dropouts who had continued their secondary education since leaving high school rose to 20%, an increase of only 3 percentage points. The majority of dropouts who continued their secondary education after dropping out did so fairly soon after leaving secondary school. Of dropouts in the selected categories who had taken courses toward a high school or equivalent degree since dropping out, 21% had completed the program and earned a degree by 1989. Hence, by eliminating from the ranks of dropouts those who had completed a high school or equivalent program by 1987, the effective dropout rate for exiters in the substudy was reduced to 27%, a rate reduced further to 26% by 1989. Thus, continuing secondary education in the first few years after dropping out of high school did not markedly increase the percentage of exiters with disabilities who had obtained high school degrees.

Because of the small number of dropouts who continued their secondary education, we are unable to identify statistically significant differences between dropouts who continued their secondary education and those who did not. Findings can be considered only suggestive of possible relationships that should be explored when additional data are available. With this caveat in mind, NLTS data suggest that students who had completed more of their high school program before dropping out were more likely to continue their secondary education later than were students who dropped out earlier in their secondary program, a finding consistent with research from the general dropout population (Kolstad and Owings, 1986). NLTS and HS&B

data both suggest that dropouts from households with higher socioeconomic status were more likely to continue their secondary educations, as were male dropouts compared with females. However, there were differences in relationships suggested by the two databases. For example, the NLTS found no difference in continuation rates based on ethnic background or on suburban residence, differences that were found for the general population of dropouts.

Summary

This chapter has provided the following observations regarding the school completion of students with disabilities:

- What were the rates at which school leavers with disabilities left secondary school by graduating, exceeding the school age limit, dropping out, or being suspended or expelled? Somewhat more than half of school leavers with disabilities did so by graduating (56%). Almost one-third dropped out of school (32%); 8% left school because they exceeded the school age limit; and 4% were suspended or expelled. Graduation rates among exiters ranged from 75% of those with orthopedic impairments to 32% of those with multiple handicaps. Students in the latter category were more likely to age out.
- To what extent did high school graduates with disabilities receive regular diplomas or other kinds of certificates of completion? Three-fourths of graduates with disabilities were reported by their schools to have been awarded a regular diploma. This percentage ranges from 92% for students with speech impairments to 33% of students with multiple handicaps and 1% of those who were deaf/blind.
- How did dropout rates for youth with disabilities compare with those for the general population of youth? School leavers with disabilities had a significantly higher dropout rate than the general population of youth (41% vs. 20% for youth 15 to 20 years old). However, part of this difference was eliminated when youth with disabilities were compared with a sample of nondisabled exiters who had the same distribution on selected demographic characteristics. Using this subsample of youth, those with disabilities still were significantly more likely to drop out (68% vs. 59%; $p<.001$).
- What were the reasons reported by parents for dropouts' leaving school without graduating? Common reasons reported by parents for students' dropping out focused on students' not doing well in school and not liking school. More than 1 in 5 female dropouts left school because of marriage or pregnancy.
- How did the characteristics of students who chose to drop out of school compare with those of students who persisted in school (i.e., remained in school or completed school by graduating or aging out)? Overall, 67% of secondary special education students in 1985-86 were still in secondary school in 1987, 18% had graduated, 11% had dropped out, 2% had aged out, and 1% had been suspended or expelled. The dropout rate was highest among students in the emotionally disturbed category (18%). Dropping out appears to be a continuation of a cluster of student behaviors that included receipt of failing grades, high absenteeism, having disciplinary problems, and lack of social affiliation with school or community groups.
- What were schools doing that appeared to help students to persist in school? The NLTS analyses suggest that early school leaving is not a problem impervious to school effects. Enrollment in occupationally oriented vocational education, receipt of tutoring assistance, and receipt of personal counseling each were significantly

related to a lower probability of dropping out of school. Combined with school factors reported in Chapter 4 to be related to higher grade performance and lower absenteeism, with their indirect relationships to a lower probability of dropping out, there appear to be several leverage points offering the potential for reducing the rate at which students drop out of school.

- Taking a longitudinal view, to what extent had students who dropped out of secondary school in the 1985-86 or 1986-87 school year resumed their secondary educations by 1989? Once students dropped out of school, they were unlikely to continue their secondary educations in the following 2 years. Parents of 21% of youth who had dropped out in the 1985-86 or 1986-87 school year reported that students had taken courses in a GED program in the previous year; 20% of those enrolling had earned a high school or equivalent diploma by the time of the NLTS parent interview in the summer or fall of 1987. Data from the 1989 NLTS exiter substudy of youth with learning or speech impairments, emotional disturbances, or mild or moderate mental retardation suggest that only an additional 3% of dropouts had resumed their high school educations in the subsequent 2 years.

Although the last three chapters have focused on students' experiences in school and their school completion decisions, we recognize that the academic domain is only one of several important aspects of the lives of young people with disabilities. The next chapter shifts our focus to issues involved in the social activities and relationships of youth.

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6 SOCIAL ACTIVITIES

by Lynn Newman

The word *sociable* comes from the Latin words *sociabilis* and *sociare,* meaning to join or associate. One who is sociable is defined by Webster as being "inclined by nature to companionship with others of the same species." This companionship can take many forms. Among adolescents, individual friendships and affiliations with groups of people who share common interests can provide opportunities for learning social skills, identifying with common goals and norms, developing good citizenship through service to others, and trying out alternative social roles, including leadership roles. These forms of relationship can continue to be valuable as young adults age when, for some youth, forming marriage and family bonds also becomes an important form of social integration. These various forms of relationship can contribute significantly to one's personal development and quality of life.

In this chapter, we examine these several aspects of the social activities of young people with disabilities—their frequency of seeing friends, membership in school and community groups, and, for youth no longer in secondary school, marriage. We also consider the flip side of social integration, asocial behavior, as measured by the extent to which young people with disabilities were reported by parents ever to have been arrested. Because social activities and opportunities during secondary school often differ from those after high school, most of our findings are presented separately for students who were still in secondary school and for youth who were out of secondary school.

The conceptual framework presented in Chapter 1 guides our analysis, as it has all aspects of the NLTS. Figure 6-1 highlights the elements of the conceptual framework that we consider here and focuses our attention on the aspects of social activities and outcomes depicted in Boxes D and E.

We ask:

- To what extent were young people with disabilities:
    - Socially isolated?
    - Seeing friends frequently?
    - Participating in groups?
    - Getting married?
    - Ever arrested?

Figure 6-1 also suggests some of the factors we expect to be related to these aspects of youths' social activities. We ask:

- What characteristics of youth, their households, their communities, and their schools were related to social activities and asocial behaviors?

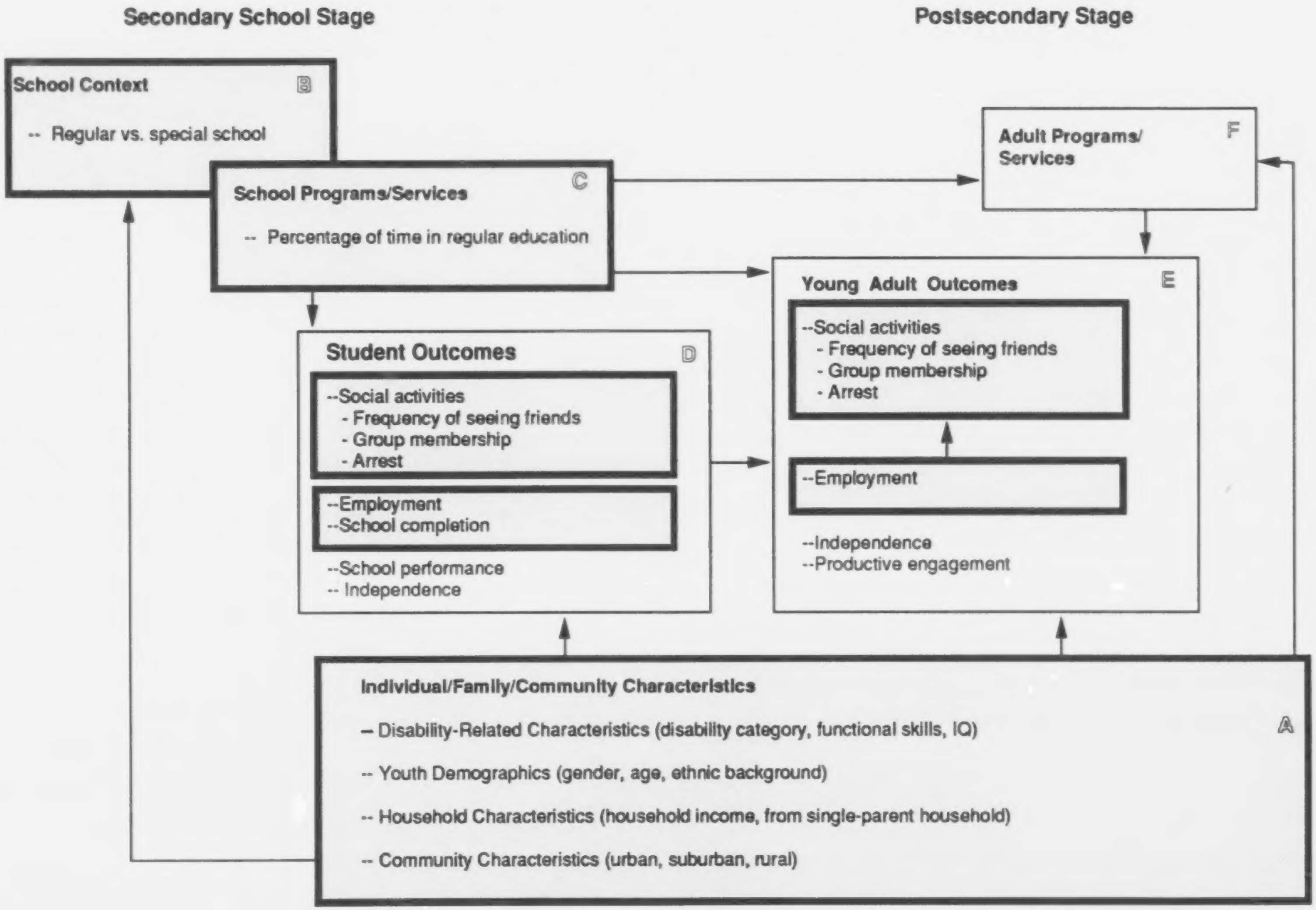
Secondary School Stage
Postsecondary Stage
School Context B
-- Regular vs. special school
School Programs/Services C
-- Percentage of time in regular education
Adult Programs/ Services F
Student Outcomes D
--Social activities
- Frequency of seeing friends
- Group membership
- Arrest
--Employment
--School completion
--School performance
-- Independence
Young Adult Outcomes E
--Social activities
- Frequency of seeing friends
- Group membership
- Arrest
--Employment
--Independence
--Productive engagement
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background)
-- Household Characteristics (household income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 6-1 HYPOTHESIZED RELATIONSHIPS OF YOUTH, HOUSEHOLD, COMMUNITY, AND SCHOOL FACTORS TO ASPECTS OF YOUTHS' SOCIAL ACTIVITIES

Finally, the framework depicted in Figure 6-1 illustrates the important distinction between social activities in secondary school, at which time the school itself provides much of the context for many students' social lives, and the postsecondary stage, when young adults often must exercise greater initiative in forming social connections when the school no longer provides a structure for them. We ask:

- How did the frequency of various social activities change once youth were no longer in secondary school?

These questions are considered in the following sections.

Friendship Interactions of Secondary School Students

As adolescents prepare for adulthood, interactions with peers increase in importance. Among sophomores in the High School and Beyond study, more than 98% felt that having strong friendships was important to their lives (CES, 1987). Young people look to peers to validate self-concepts and to provide behavior models. Through interactions with friends, youth explore roles and learn social skills that help them make effective transitions to adult roles and responsibilities.

The need to establish relationships with same-sex and opposite-sex peers is no different for youth with disabilities than for their nonhandicapped peers (Johnson and Johnson, 1980; Zigmond and Sainato, 1981). Yet previous research has found that youth with disabilities often have problems developing satisfactory social lives and frequently spend their time at home alone (Bell, 1976; McDevitt et al., 1978). Even those with milder disabilities are often thought to need help with learning about appropriate social interactions (Sabornie, 1989). How valid is this image of youth with disabilities?

To learn about variations in the frequency that youth were seeing friends, the NLTS asked parents to report how many days a week their children who were still in secondary school typically got together with friends outside of school. We report findings for students who were in secondary school in the 1986-87 school year, and consider parent responses from two perspectives. Our first concern is with youth who were reported by parents to be relatively socially isolated in terms of friendships—students who saw friends less than once a week outside of school. We then move to the opposite end of the frequency continuum. We examine the extent to which students were reported to see friends outside of school very frequently—six or seven days a week—and explore the characteristics of youth with this intensive involvement with friendships outside of school.

Socially Isolated Secondary School Students with Disabilities

Although we use the term "socially isolated" to describe students reported by parents either to never see friends outside of school or to see them less than once a week, we recognize that the absence of frequent friendship interactions outside of school, is not true isolation. Secondary school students spend most of their school day in classes with other students, interacting during class time, recess, lunch, and informally after school; this is far from being truly isolated. However, these interactions may not be synonymous with friendships. By socially isolated, we mean that the student rarely spends time with friends informally, outside of the structured school day. Indeed, spending most of one's day surrounded by people and yet having no friends may speak to just how socially isolated one can be.

The majority of secondary school students with disabilities were socially connected to friends. However, a small proportion (14%) of students were reported by parents either to never see friends outside of school or to see them less than once a week.

Who were these socially isolated students? As depicted in Figure 6-2, there was considerable variation by disability category in the percentage experiencing relative social isolation, ranging from 9% of youth with learning disabilities to 65% of youth who were deaf/blind (p<.001). Students classified as multiply handicapped (44%) joined those classified as deaf/blind as the least socially involved with friends. Youth classified as mentally retarded or

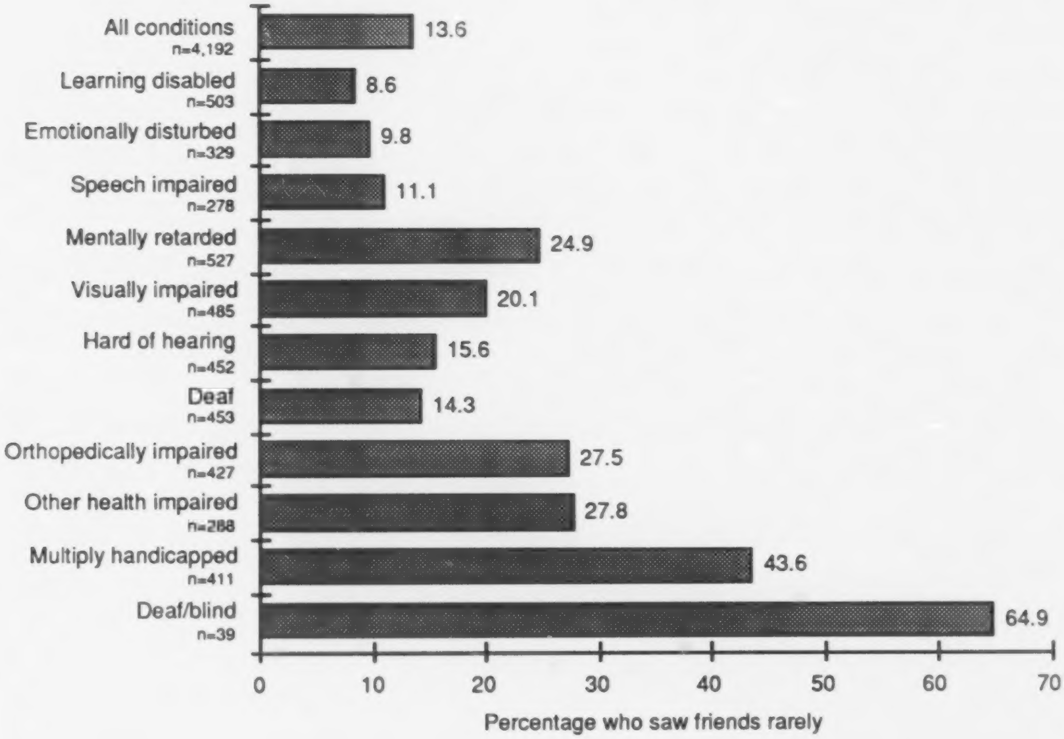

FIGURE 6-2 SOCIAL ISOLATION OF YOUTH WITH DISABILITIES DURING SECONDARY SCHOOL

Source: Parent interviews.

visually, orthopedically, or other health impaired also were significantly less likely to visit with friends than youth with learning disabilities, for example ($p<.001$).

These variations in frequency of contacts with friends reflect the limiting influence of more severe disabilities. Lower-functioning youth, in terms of the ability to translate basic mental processes into everyday activities (e.g., counting, reading, telling time) and the ability to do self-care tasks (e.g., dressing or feeding oneself), were less frequently involved with friends.* As seen in Figure 6-3, about half of those who received the lowest scores on these scales never or rarely saw friends, compared with 6% to 10% of those with the highest scores ($p<.001$).

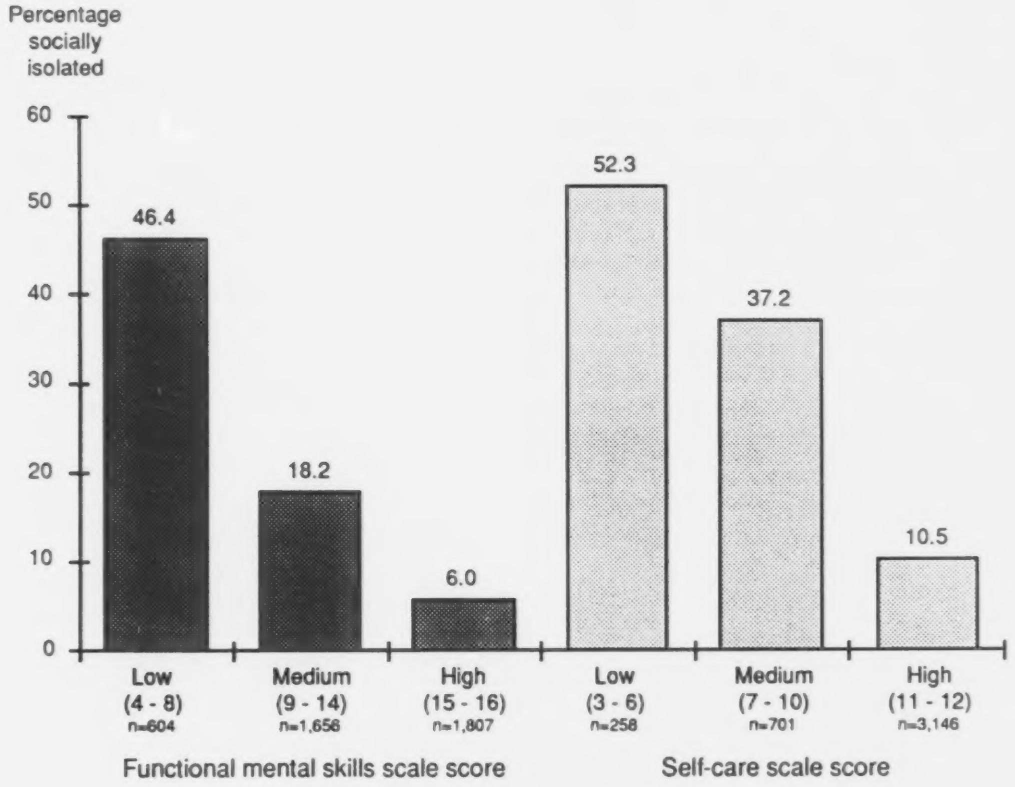

FIGURE 6-3 RELATIONSHIP OF FUNCTIONAL SKILLS TO SOCIAL ISOLATION OF SECONDARY SCHOOL STUDENTS

Source: Parent interviews.

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* See Appendix C for definitions of these scales.

Factors Distinguishing Socially Isolated Students

As indicated in the conceptual framework presented in Figure 6-1, individual, household, and community characteristics, as well as school context and school programs, are expected to relate to the frequency with which youth saw friends. Table 6-1 begins to explore these relationships by focusing on variations in the rate at which students rarely saw friends for students who differed in their individual characteristics and in characteristics of their households and their communities.

Individual, Household, and Community Characteristics—Few of the factors we examined were significantly related to whether students were isolated from friends. Although findings from a recent survey of persons with disabilities (Harris and Associates, 1986) indicate that those with lower household incomes were more likely to say that their disability constrained their social lives than were respondents with higher incomes, NLTS data suggest that social isolation of students in secondary school was not related to household income. Similarly, rural residents may have had greater distances to travel to see friends, but they were no more likely than students in other areas to see friends rarely. Neither was ethnic background significantly related to whether students were socially isolated.

Table 6-1

VARIATIONS IN RATES OF SOCIAL ISOLATION BY DEMOGRAPHIC CHARACTERISTICS OF SECONDARY SCHOOL STUDENTS

	Students Who Saw Friends Never or Less Than Once a Week		
Youth Characteristics	%	S.E.	N
Individual characteristics			
Gender			
Male	12.4	1.5	2,518
Female	16.4	2.4	1,674
Age			
15 or 16	12.2	1.9	1,755
17 or 18	12.7	1.9	1,755
19 or older	25.2	4.0	682
Ethnic background			
Black	10.7	2.5	984
White	14.1	1.6	2,583
Hispanic	21.1	5.4	491
Household/community demographics			
Household income			
Less than $12,000	13.7	2.6	980
$12,000 to $24,999	14.8	2.5	1,107
$25,000 or more	11.5	1.9	1,654
Attended school in:			
Urban area	11.7	2.1	1,838
Suburban area	14.2	2.3	1,467
Rural area	15.1	2.3	887

Source: Parent interviews.

Significant relationships were noted for the following factors:

- *Age*. Youth who were still in secondary school after age 19 tended to be more severely disabled, which would lead them to see friends less frequently. This pattern of older youth being more socially isolated held true for youth in each of the disability categories, as well as for students as a whole.
- *Gender*. There were no significant gender differences in bivariate relationships in the extent to which youth were socially isolated, either for youth as a whole or for youth in any of the disability categories. However, when other factors were controlled for in a multivariate analysis, presented later, girls were significantly more likely to be isolated than boys.

Student Activities and Behaviors—Figure 6-1 suggests that aspects of students' behaviors and activities other than friendship interactions relate to the extent to which students with disabilities were socially isolated. Table 6-2 illustrates some of these relationships, including the following:

- *Employment*. Recently, there have been concerns about secondary school students' working because time spent working might take away from time for study or for important socializing with peers (Greenberger and Steinberg, 1986). From this perspective, we might expect employed youth to see friends less often. On the other hand, employment might provide an expanded social network, so that employed youth might have access to a greater number of persons with whom to form friendships and might see friends more often. NLTS data do not support the concern that employed youth socialize less. As indicated in Table 6-2, youth who were not employed were more than twice as likely to be socially isolated (17% vs. 7%; p<.001). This might be explained in part by the difference in severity of disability between employed and unemployed students. Multivariate analysis, reported later in this chapter, reveals no independent relationships between social isolation and employment when differences in disability category, functional levels, and other factors were controlled.

Table 6-2

RELATIONSHIP OF STUDENT ACTIVITIES TO SOCIAL ISOLATION

	Students Who Saw Friends Never or Less Than Once a Week		
Student Activities	%	S.E.	N
Student had a paid job			
Yes	7.0	1.7	1,116
No	17.4	1.8	3,066
Student belonged to a school/community group			
Yes	12.3	1.9	1,922
No	14.8	1.8	2,258
Student had had disciplinary problems			
Yes	6.3	2.9	299
No	14.5	1.4	3,886

Source: Parent interviews.

- *Having had disciplinary problems.* Another measure of social integration is the level of asocial behavior the youth has exhibited: whether the youth had been suspended or expelled from school, fired from a job, or arrested. Youth who had not had these disciplinary problems were more likely to be socially isolated (14% vs. 6%; p<.05), perhaps because of the interrelationship of disability with having had disciplinary problems. Youth who exhibited these asocial behaviors were less severely disabled. As indicated in a later section of this chapter, youth at the lower end of the functional mental skills and self-care ability scales were the least likely to have been arrested. These lower-functioning youth also were the most likely to be socially isolated.

In the same way that employment might offer an expanded social network, school and community groups might be expected to increase the possibility of a youth's developing friendships. Surprisingly, belonging to a school or community group was not related to being socially isolated.

- *School factors.* Secondary school students usually spend a great deal of time at school, with the school environment providing an opportunity to interact with peers. Do different types of school environments affect how often students spend time with friends outside of school?

- *Type of school attended.* NLTS youth attended several types of secondary schools, ranging from general comprehensive high schools to specialized vocational schools to schools that served only youth with disabilities. Opportunities for friendships might differ at these various types of schools, particularly in light of the differences in characteristics of students attending them (see Chapter 3). Those who attended special schools for youth with disabilities were significantly more likely to see friends rarely (Table 6-3). More than one-third of special school students never or rarely saw friends outside of school, compared with 11% of those attending a general comprehensive high school (p<.001).

Table 6-3

VARIATIONS IN RATES OF SOCIAL ISOLATION BY SCHOOL FACTORS

	Students Who Saw Friends Never or Less Than Once a Week		
School Characteristics	%	S.E.	N
Type of school attended			
Special school	34.1	4.7	974
General	10.9	1.4	2,620
Other type (includes vocational and technical)	18.3	8.3	115
Average daily attendance†			
≤ 500 students	14.3	3.1	408
501 to 1,100 students	10.7	2.1	928
>1,100 students	10.6	2.3	1,334

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† Excludes schools that served only youth with disabilities.

Source: Parent interviews and Survey of Secondary Special Education Programs.

The decreased level of socialization seen for special school attendees may be due to the nature of students' disabilities and to their lower functional abilities, rather than to the special school environment. When looking at youth who had the same type of disability, we see no difference in the rate of being socially isolated among youth who attended special schools, compared with those in regular schools. For example, for students categorized as deaf, 13% of those who attended regular schools rarely saw friends, compared with 12% who attended special schools; 8% of youth with emotional impairments who attended special schools were socially isolated, as were 8% of those who attended regular schools. More than 40% of youth with multiple handicaps were socially isolated, regardless of the type of school they attended.

- *Mainstreaming*. As we learned in Chapter 4, being in regular education was an academic challenge for many students with disabilities; those mainstreamed for a greater part of their day were more likely to have failed classes and received lower grades. Yet academic goals are not the only goals of mainstreaming. There also are emotional and social purposes for mainstreaming students with disabilities (Johnson and Johnson, 1980). Proponents of mainstreaming hope that increased interaction with nondisabled students brings increased opportunities for friendships to develop between students with disabilities and other students. Following this line of thought, youth who were mainstreamed for more classes during the day might be less socially isolated. On the other hand, some have argued that students with some kinds of disabilities might feel more comfortable or interact more effectively with others who have similar disabilities. This view would lead us to expect increased socialization for those who were less mainstreamed.

  For youth who attended schools along with nondisabled students, we find that students who were more segregated were more likely to be socially isolated. For example, as indicated in Figure 6-4, 30% of youth who were completely segregated for classes and 1 in 5 youth who were mainstreamed for 25% or less of the day rarely saw friends, while only 7% of those who were mainstreamed between 51% and 75% of the day ($p<.001$) and 6% of those mainstreamed more than three-fourths of the day rarely saw friends ($p<.001$).

  Although we know that being mainstreamed is confounded with severity of disability, when severity of disability was controlled for in a multivariate analysis, attending regular education classes was still significantly related to a lower probability of being socially isolated, as discussed in the following section.

Although attending smaller schools has been related to an increased sense of secondary school community (Bryk and Driscoll, 1988; Lightfoot, 1983; Wehlage et al., 1989), neither school size nor the percentage of students in special education attending the school was related to the rate at which students with disabilities were isolated from friends.

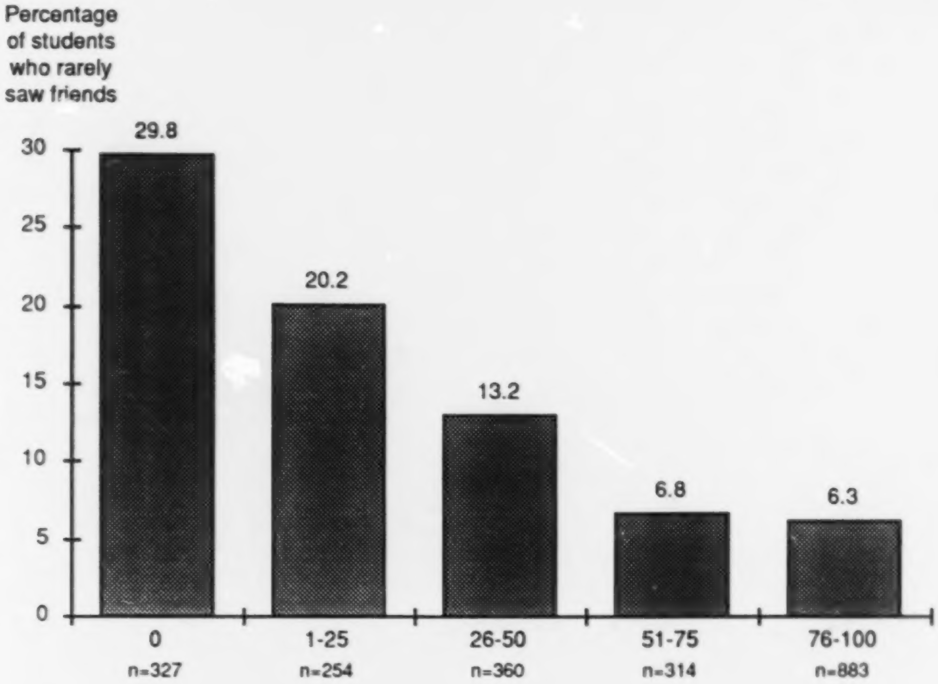

FIGURE 6-4 RELATIONSHIP OF SOCIAL ISOLATION TO PERCENTAGE OF TIME SECONDARY SCHOOL STUDENTS SPENT IN REGULAR EDUCATION CLASSES†

† Excludes students attending schools serving only students with disabilities.

Source: Data on friendship interactions from parent interviews; placement data from students' school records.

Findings of Multivariate Analysis of Social Isolation of Secondary School Students

A multivariate analysis allows us to disentangle the independent relationships of the several factors discussed above. Results of the multivariate analysis are presented in Table 6-5. (See Appendix A for a discussion of the logit analysis procedure and the interpretation of its results.) The first column of the table presents the logit coefficients. The second column shows the logit results converted to a change in the estimated rate of social isolation associated with having a particular attribute (or the specified value of it), while having average values on other variables in the analysis.

The analysis that includes the factors listed in Table 6-4 is statistically significant (χ^2=488; p<.0001). Most of the explanatory power of the model rests with disability characteristics. Confirming the relationships seen earlier, students in some disability categories and those with lower functional mental skills and self-care abilities were significantly more likely to be socially

Table 6-4

FACTORS RELATED TO SOCIAL ISOLATION AMONG SECONDARY SCHOOL STUDENTS

		Change in Estimated Rate of Social Isolation	
Variable	Coefficient	Amount	For Increment
Disability-related factors			
Disability category:[†]			
Emotionally disturbed	.34	4.0	Emotionally disturbed vs. learning disabled
Speech impaired	.41	5.0	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	.93***	13.7	Mentally retarded vs. learning disabled
Visually impaired	.62*	8.2	Visually impaired vs. learning disabled
Hard of hearing	.56*	7.3	Hard of hearing vs. learning disabled
Deaf	.18	2.0	Deaf vs. learning disabled
Orthopedically impaired	1.08***	16.7	Orthopedically impaired vs. learning disabled
Other health impaired	1.13***	17.7	Other health impaired vs. learning disabled
Severely impaired	1.26***	20.3	Severely impaired vs. learning disabled
Functional mental skills score	-.10***	-5.9	High vs. medium (16 vs. 12)
Self-care ability score	-.15***	-8.4	High vs. medium (11 vs. 8)
IQ score	.00	1.6	100 vs. 80
Individual characteristics			
Age	.09**	4.3	Age 18 vs. 15
Youth was male	-.34**	-5.7	Male vs. female
Youth was a minority	-.12	-1.9	Minority vs. nonminority
Household characteristics			
From a single-parent household	-.12	-1.9	Yes vs. no
Household income	-.05	-2.5	$38,000-$50,000 vs. <$12,000
Community characteristics			
Youth attended school in urban area	-.08	-1.3	Urban vs. suburban
Youth attended school in rural area	.04	.7	Rural vs. suburban
Student activities/behaviors			
Youth is employed	-.04	-2.9	Part-time job vs. not employed
Youth had disciplinary problems	-.53	-7.5	Yes vs. no
School factors			
Average daily attendance (school size)	-.00	-.1	1,300 vs. 800
Attended special school	-.26	-4.0	Yes vs. no
Percentage of day student mainstreamed	-.01***	-4.4	6 classes vs. 3 classes

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Note: The analysis includes youth who were in secondary school (N = 2,712). For details on variables appearing in this analysis, see Appendix C. Unweighted means and correlations of the dependent variable and all other variables in the analysis are presented in Appendix D, Table D6-1.

[†] Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* p < .05; ** p < .01; *** p < .001.

isolated. For example, youth with orthopedic impairments were estimated to be 17 percentage points more likely to be socially isolated than were youth classified as learning disabled (p<.001). This is virtually all the difference noted between the two categories, as was depicted earlier in Figure 6-2 (28% for those with orthopedic impairments vs. 8% for those with learning disabilities), indicating that few other differences between students in these categories helped to account for their differences in rates of social isolation beyond the nature of their disabilities. Only the following factors were significantly related to students' seeing friends rarely, independent of disability characteristics:

- *Age*. Our earlier analyses indicating that older youth were more likely to be isolated might have been due more to severity of disability than to age, because older secondary school students tended to be more severely disabled. However, the relationship between age and seeing friends rarely was sustained, even controlling for disability characteristics. For example, among youth with the same type of disability and functional levels, youth who were 18 years old were estimated to be 4 percentage points more likely to be socially isolated than youth who were 15 years old (p<.01).
- *Gender*. Boys were estimated to be 6 percentage points less likely to be socially isolated than girls (p<.01), independent of other factors in the analysis.
- *Percentage of class time spent in regular education*. Even when controlling for differences in students' disabilities, functional levels, and demographics, the percentage of the school day spent in regular education classes was positively and significantly related to a lower likelihood of being socially isolated. For example, students who spent 6 classes in regular education were estimated to be 4 percentage points less likely to be socially isolated than were students who spent 3 classes in regular education, other factors being equal.

Youth background characteristics such as ethnicity, socioeconomic status, and urbanicity were not related significantly to whether youth were socially isolated. Also, the earlier relationship between attending a special school for youth with disabilities and increased rates of social isolation was eliminated when disability characteristics were controlled. Similarly, no significant relationship was found between having had disciplinary problems and social isolation, despite the significant negative relationship found earlier, indicating that the confounding effects of disability also explained much of that earlier association.

On the basis of these analyses, we see a picture of socially isolated students as generally lower functioning and more severely disabled, female, and older than their peers. In addition, socially isolated students were taking fewer regular education classes than less isolated students with disabilities.

Frequency of Contacts with Friends Among Secondary School Students

This section focuses on the other end of the social spectrum: among youth who visit with friends, what were the factors associated with their frequency of seeing friends? It is important to be aware that data obtained from parents regarding their children's friendships measure the frequency of relationships, not the number of relationships. A young person could have had only one friend whom he or she saw often. It also is not a measure of the quality or closeness of friendships or of the appropriateness or influence of the friends with whom the youth socialized. Although most people would agree that social isolation is to be avoided, we do not intend to imply that greater frequency of contacts is necessarily a positive aspect of friendships. Taking a very active part in a social network does not always lead to socially appropriate behaviors, and spending large amounts of time socializing may limit youths' time for other positive activities. However, a frequency measure does allow us to learn more about the extent to which youth were particularly socially active and the characteristics of those students who were.

NLTS findings suggest considerable social involvement with friends among secondary school students with disabilities. The majority of secondary school students (86%) were reported by parents to get together socially with friends outside of school at least once a week, with half getting together with friends between four and seven times a week. This NLTS finding is similar to the 82% of youth with disabilities who were reported in a Harris and Associates (1989) survey to see friends after school or at home "sometimes" or "often." The rate of friendship contacts for students with disabilities is higher than the 68% of High School and Beyond (HS&B) sophomores reported to visit with friends at a local gathering place at least once a week. This difference might be due in part to differences in question wording; HS&B youth were asked to indicate the time spent visiting with friends "at a local gathering place," while NLTS respondents were asked to indicate how often youth got together with friends outside of school, which would include the relatively frequent activity of visiting with friends at home.

Among students who saw friends at least once a week, 61% of students with disabilities were reported to see friends between 1 and 5 days a week, whereas 39% saw friends more than 6 days a week (Table 6-5). Students with emotional disturbances were significantly more likely than students with disabilities as a whole to see friends often (48% vs. 39%; p<.05). Youth with orthopedic impairments (25%), multiple handicaps (27%), or who were deaf/blind (25%) were the least likely to see friends frequently.

Among students who saw friends, levels of functional mental skills were not related to the frequency of seeing friends. However, physical functioning, as indicated by the ability to perform self-care tasks (e.g., dressing or feeding oneself), did relate to the frequency of seeing friends. Lower-functioning students were less frequently involved with friends. As seen in Table 6-5, about 4 in 10 of those who received high self-care scores saw friends often, compared with 6% of those with low scores (p<.05).

Factors Related to the Frequency of Seeing Friends

We expect to find relationships between seeing friends frequently and various individual, household, community, and school factors that are similar to those observed for students who were socially isolated. These relationships are discussed below.

Table 6-5

RELATIONSHIP OF DISABILITY CHARACTERISTICS TO FREQUENCY OF STUDENTS' SEEING FRIENDS[†]

Disability Category	Percentage Who Saw Friends: Regularly (1-5/week)	Percentage Who Saw Friends: Often (6-7/week)	S.E.	N
All conditions	61.1	38.9	2.0	3,300
Learning disabled	59.7	40.3	3.1	464
Emotionally disturbed	51.7	48.3	4.0	292
Speech impaired	61.2	38.8	4.3	246
Mentally retarded	67.9	32.1	3.1	390
Visually impaired	65.6	34.4	4.5	384
Hard of hearing	71.0	29.0	4.2	381
Deaf	62.3	37.7	4.2	390
Orthopedically impaired	75.4	24.6	4.4	308
Other health impaired	71.7	28.3	4.7	201
Multiply handicapped	73.3	26.7	5.3	232
Deaf/blind	—	—	—	12
Scale Scores				
Functional mental skills scale score:				
High (15-16)	61.5	38.5	2.7	1,617
Medium (9-14)	58.7	41.3	3.4	1,288
Low (4-8)	68.0	32.0	6.7	301
Self-care scale score:				
High (11-12)	59.3	40.7	2.2	2,708
Medium (7-10)	74.8	25.2	6.0	432
Low (3-6)	93.9	6.1	5.7	99

[†] Excludes students who never saw friends or saw friends less than once a week.

Source: Parent interviews.

Individual, Household, and Community Characteristics—In bivariate relationships, we see the following factors significantly related to the frequency with which students saw friends, among those who saw friends at least weekly (Table 6-6).

- *Gender*. Earlier, we found that boys were less likely than girls to be socially isolated, independent of other factors. We see similar gender differences in the frequency of friendship patterns, with boys significantly more likely than girls to see friends often (42% vs. 32%; p<.05).
- *Ethnicity*. Among students who saw friends, ethnic differences were apparent in bivariate relationships in the frequency of seeing friends, in that Hispanic youth were significantly less likely than black youth to see friends often (25% vs. 47%; p<.01). In multivariate analyses reported later, differences between minorities and nonminorities were not statistically significant.

Table 6-6

RELATIONSHIP OF DEMOGRAPHIC CHARACTERISTICS OF SECONDARY SCHOOL STUDENTS TO FREQUENCY OF SEEING FRIENDS[†]

Youth Characteristics	Percentage Who Saw Friends: Regularly (1-5/week)	Percentage Who Saw Friends: Often (6-7/week)	S.E.	N
Individual characteristics				
Gender				
Males	58.1	41.9	2.5	2,030
Females	68.0	32.0	3.4	1,270
Age				
15 or 16	57.0	43.0	3.1	1,434
17 or 18	64.2	35.8	2.9	1,406
19 or 20	67.3	32.7	5.7	377
> 20	77.4	22.6	8.8	83
Ethnic background				
Black	53.2	46.8	4.3	823
White	62.2	37.8	2.5	2,024
Hispanic	75.3	24.7	6.6	340
Household/community characteristics				
Household income				
Less than $12,000	53.6	46.4	4.1	784
$12,000 to $24,999	63.7	36.3	3.8	881
$25,000 or more	67.5	32.5	3.1	1,305
Attended school in:				
Urban area	55.2	44.8	3.6	1,435
Suburban area	63.6	36.4	3.5	1,162
Rural area	64.9	35.1	3.4	703

[†] Excludes students who never saw friends or saw friends less than once a week.

Source: Parent interviews.

- *Socioeconomic status.* Youth from lower-income households were more likely to see friends frequently in these bivariate relationships. Students from households with incomes of less than $12,000 were significantly more likely to see friends frequently than youth from households earning $25,000 a year or more (46% vs. 32%; p<.01). No significant differences were found in multivariate analysis, reported in a later section.
- *Urbanicity.* Youth who lived in a rural community were less likely to see friends often than were those living in an urban community (35% vs. 45%; p<.05).

Age did not appear to influence the frequency of seeing friends.

Other Student Activities and Behaviors—Among students who saw friends at least once a week, positive measures of social integration, such as being employed or participating in groups, were not related to the frequency of seeing friends. Conversely, having had disciplinary problems (i.e., being suspended or expelled from school, fired from a job, or arrested) was significantly related to seeing friends frequently. As indicated in Table 6-7, more than half of the youth (52%) who exhibited these asocial behaviors saw friends frequently, compared with 37% of those who had not had disciplinary problems ($p<.05$). This relationship between disruptive behavior and frequency of seeing friends raises the question whether there is a threshold beyond which seeing friends more often is no longer beneficial for youth.

Table 6-7

RELATIONSHIP OF OTHER STUDENT ACTIVITIES TO FREQUENCY OF SEEING FRIENDS[†]

Student Activities	Percentage Who Saw Friends: Regularly (1-5/week)	Often (6-7/week)	S.E.	N
Student had a paid job				
Yes	61.6	38.4	3.3	1,000
No	61.1	38.9	2.5	2,290
Student belonged to a group				
Yes	61.6	38.4	3.0	1,633
No	60.9	39.1	2.7	1,657
Student had had disciplinary problems				
Yes	47.9	52.1	6.2	268
No	63.0	37.0	1.7	3,026

[†] Excludes students who never saw friends or saw friends less than once a week.

Source: Parent interviews.

School Characteristics—Crosstabulations of school type with frequency of seeing friends do not indicate a difference in the frequency of seeing friends between youth attending three types of secondary schools, as shown in Table 6-8. Yet when disability characteristics were controlled for in a multivariate analysis (presented later in this chapter), students with the same kind of disability and functional levels who attended special schools were significantly more likely to see friends frequently than those in regular schools. Among students attending schools with nondisabled peers, the number of students in the school was not related to the frequency of seeing friends, nor was the percentage of the day students spent in regular education classes.

Table 6-8

RELATIONSHIP OF SCHOOL FACTORS TO FREQUENCY OF STUDENTS' SEEING FRIENDS[†]

School Characteristics	Percentage Who Saw Friends: Regularly (1-5/week)	Percentage Who Saw Friends: Often (6-7/week)	S.E.	N
Type of school attended	65.9	34.1	6.1	675
Special school	60.8	39.2	2.3	2,180
General school	60.0	40.1	11.2	92
Other				
Average daily attendance at school[§]				
≤ 500 students	64.3	35.7	4.6	332
501 to 1,100 students	61.7	38.3	3.6	767
> 1,100 students	57.9	42.1	3.9	1,112
Percentage of day youth spent in regular education classrooms[§]				
None	62.6	37.4	5.4	697
1% to 25%	69.4	30.6	7.4	212
26% to 50%	55.2	44.8	6.1	314
51% to 75%	64.8	35.2	5.6	290
76% to 100%	65.5	34.5	3.9	819

[†] Excludes students who never saw friends or saw friends less than once a week.

[§] Excludes students in special schools.

Source: Parent interviews.

A Multivariate Analysis of the Frequency with Which Secondary School Students Saw Friends

The preceding section discussed the relationship of several factors to the frequency of seeing friends; yet many of these factors are interrelated, requiring a multivariate analysis to sort out their independent relationships to whether students saw friends frequently (i.e., six or seven days a week outside of school). This logit analysis focuses on students who saw friends at least once a week, excluding those who were socially isolated.

The independent variables used in the analysis were those discussed above; they are listed in Table 6-9, along with their relationships to whether students were reported to see friends often.

Although the multivariate analysis was statistically significant ($\chi^2 = 118$; $p<.0001$), few significant relationships were found. Disability characteristics were much less powerful predictors of seeing friends often than they were of social isolation, as analyzed previously. Part of this may be due to the relative homogeneity among students in different disability categories regarding the frequency with which they saw friends once those who were socially isolated were removed from the analysis. Only students with orthopedic impairments were

Table 6-9

FACTORS RELATED TO SEEING FRIENDS FREQUENTLY AMONG SECONDARY SCHOOL STUDENTS

		Change in Estimated Rate of Seeing Friends Frequently	
Variable	Coefficient	Amount	For Increment
Disability-related factors			
Disability category:†			
Emotionally disturbed	.04	.1	Emotionally disturbed vs. learning disabled
Speech impaired	-.20	-4.5	Speech impaired vs. learning disabled
Mentally retarded	.06	1.3	Mentally retarded vs. learning disabled
Visually impaired	-.20	-4.5	Visually impaired vs. learning disabled
Hard of hearing	-.34	-7.4	Hard of hearing vs. learning disabled
Deaf	-.26	-5.9	Deaf vs. learning disabled
Orthopedically impaired	-.76**	-15.4	Orthopedically impaired vs. learning disabled
Other health impaired	-.31	-6.8	Other health impaired vs. learning disabled
Severely impaired	-.33	-7.4	Severely impaired vs. learning disabled
Functional ability score	.07**	6.1	High vs. medium (16 vs. 12)
Self-care ability score	.08	4.9	High vs. medium (11 vs. 8)
IQ score	.00	.9	100 vs. 80
Individual characteristics			
Age	-.05	-3.5	Age 18 vs. 15
Youth was male	.52***	11.0	Male vs. female
Youth was a minority	.03	.7	Minority vs. nonminority
Household characteristics			
From a single-parent household	.13	2.9	Yes vs. no
Household income	-.03	-2.3	$38,000-$50,000 vs. <$12,000
Community characteristics			
Youth attended school in urban area	.08	1.7	Urban vs. suburban
Youth attended school in rural area	-.04	-.8	Rural vs. suburban
Student activities/behaviors			
Youth had disciplinary problems	.56**	13.0	Yes vs. no
Youth was employed	-.04	-2.9	Part-time job vs. not employed
School characteristics			
Average daily attendance (school size)	-.00	.4	1,300 vs. 800
Attended special school	.40*	9.2	Yes vs. no
Percentage of day student mainstreamed	-.00	.1	6 classes vs. 3 classes

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Note: The analysis includes youth who were in secondary school who saw friends outside of school at least once a week (N = 2,158). Students who saw friends 6 to 7 days a week were coded 1 on the dependent variable as frequently seeing friends. For details on variables appearing in this analysis, see Appendix C. Unweighted means and correlations of the dependent variable and all other variables in the analysis are presented in Appendix D, Table D6-2.

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* p < .05; ** p < .01; *** p < .001.

significantly different from the comparison group, those with learning disabilities, in the rate at which they saw friends often. Among the measures of functional abilities we examined, we found that only the functional mental skills scale was significantly related to frequent friendship interactions.

Among individual, household, and community characteristics, only gender was found to be significantly related to seeing friends often, with males estimated to be 11 percentage points more likely than females to see friends 6 or 7 days a week. There are several potential explanations for this finding. In Chapter 4, we learned that girls had generally higher grades than boys; perhaps they were spending more time studying. Similarly, Chapter 7 demonstrates that girls were more actively involved in performing household chores than boys, another activity that may have limited time available to spend with friends, relative to the time available to boys.

One of the strongest relationships we found involves students who had had disciplinary problems, which was significantly and positively related to an increased likelihood of seeing friends often ($p<.01$). Most literature discussing the social experiences of youth with disabilities focuses on the concern that these youth are not as socially active as their nondisabled peers. Social interactions are thought to have a positive value for youth with disabilities, as reflected in the fact that training in social skills was included in the life skills training programs in the schools attended by virtually all youth (99%) whose schools provided such programs. Yet once youth were involved with friends at all, our analysis raises the question whether seeing friends more often continued to be a positive influence. The relationship between disciplinary problems and frequency of seeing friends suggests there may be a threshold beyond which seeing friends more often is no longer beneficial. As we learned in Chapter 4, youth who saw friends more often had significantly poorer school performance than youth who saw friends in moderation. Chapter 5 pointed out that dropout rates also were higher for those who saw friends more often, independent of other characteristics of youth. As discussed more fully in Chapter 10, many out-of-school youth who visited with friends very often were doing so to the exclusion of other productive activities.

Another significant relationship involves students who were enrolled in special schools for youth with disabilities, who were estimated to be 9 percentage points more likely to see friends often than youth with the same disability characteristics who attended regular schools. It is important to remember that the analysis in this section focuses on students who saw friends at least once a week; youth who were socially isolated have been excluded. Special schools were attended primarily by students who were deaf, visually impaired, emotionally disturbed, or multiply handicapped. As we saw earlier, more severely disabled youth were the most likely to be socially isolated. When this group was excluded from the analysis, those left in the analysis were the special school students who were less severely disabled, primarily those who were deaf or visually impaired. These special school students were more likely to see friends frequently than were their counterparts who attended regular high schools.

Group Memberships of Secondary School Students

Thus far, we have discussed informal friendship interactions of secondary school students that occurred outside of school. Here, we focus on a somewhat more formalized dimension of social involvement: student participation in school or community groups.

Previous research has documented the importance of students' bonding with their schools (Wehlage et al., 1989; Finn, 1989). This social bonding often is seen in a student's commitment to the norms of the school, in the involvement in school activities, and in an affiliation with school groups. Participation in extracurricular groups in secondary school has been correlated with higher levels of self-esteem, increased student engagement, more expressed satisfaction with school, and increased likelihood of school completion (Pittman and Haughwout, 1987; Holland and Andre, 1987). As described in Chapter 4, youth with disabilities who belonged to groups had significantly lower absenteeism and a lower probability of course failure than students who were not affiliated. Extracurricular activity also was linked in Chapter 5 to a lower likelihood of early school leaving.

Although extracurricular group participation has been related to desirable outcomes, it is unclear whether this reflects the benefits of participation or preexisting personality and social differences between youth who select themselves into or out of extracurricular group activities. Some research, using causal modeling techniques, tentatively indicates that participation is statistically related to desirable outcomes (Hans and Eckland, 1976; Otto and Allwin, 1977), but it is premature to say that participation leads to such effects (Holland and Andre, 1987).

Parents of youth with disabilities were asked whether their children had belonged to any school or community groups in the previous year. Among youth who had been in secondary school in the previous year, 41% were reported by parents to have had group memberships in that year. Although the majority of group members (66%) belonged to 1 school or community group, more than 28% participated in 2 groups, and 6% of group members were reported to belong to 3 or more groups.

Secondary school students belonged to a variety of types of groups. Sports teams and social, service, or hobby groups (e.g., Boy Scouts, church youth groups) were the most popular types of affiliations, with 24% of students participating in sports and 20% involved in social or service types of groups. Seven percent of students belonged to a performing group, such as a choir, band, dance group, or theater; 2% participated in school subject matter clubs, such as a science or a language club; and 3% joined a vocational club, such as Future Homemakers or Junior Achievement. Rates of membership in these kinds of groups among students with disabilities were lower than for students in the general population. For example, more than half of sophomores in the general population were reported to have belonged to sports teams (54%; CES, 1987), compared with 1 in 5 secondary school students with disabilities.

As shown in Figure 6-5, group membership rates ranged from 30% for youth classified as multiply handicapped to 59% of those who were deaf (p<.001). Youth classified as mentally retarded (33%) or emotionally disturbed (34%) also were significantly less likely than other disabled youth to participate in group activities. Students with visual (51%) or speech impairments (50%) were significantly more likely than others to participate in groups.

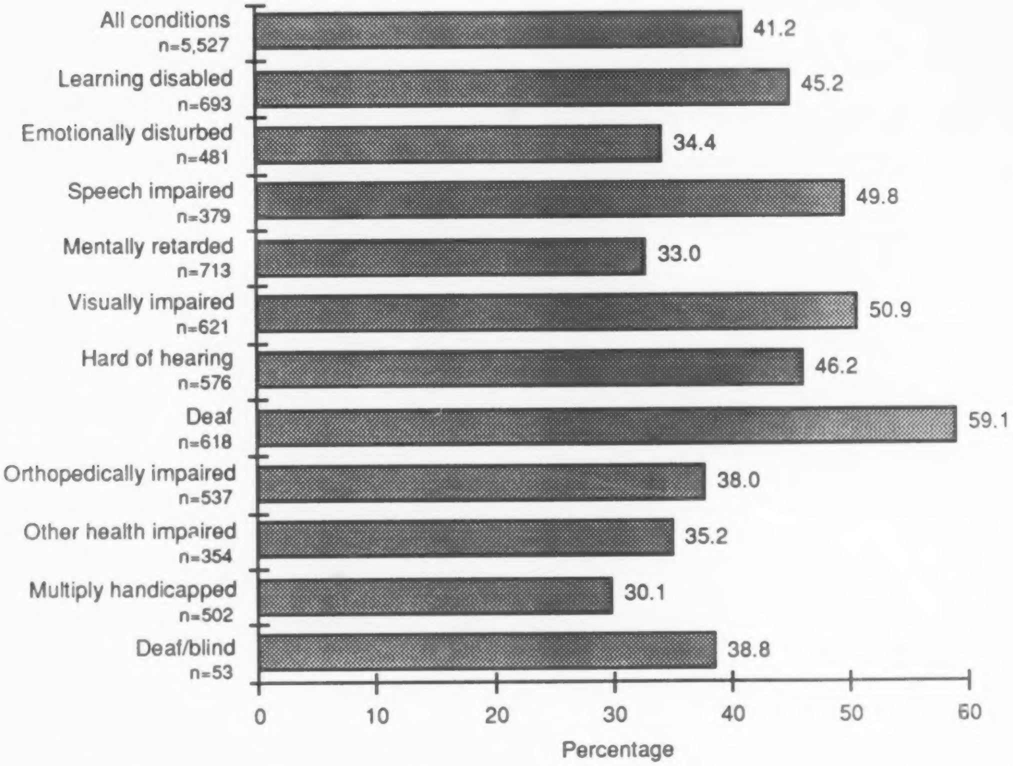

FIGURE 6-5 SECONDARY SCHOOL STUDENTS WHO BELONGED TO GROUPS

Source: Parent interviews.

Variation in functional ability was related to participation in groups. As seen in Figure 6-6, students with higher scores on the self-care and functional mental skills scales were significantly more likely to belong to a group (p.<001). However, more than a quarter of those with low functional mental skills and almost as many of those with low self-care skills still belonged to a school or community group.

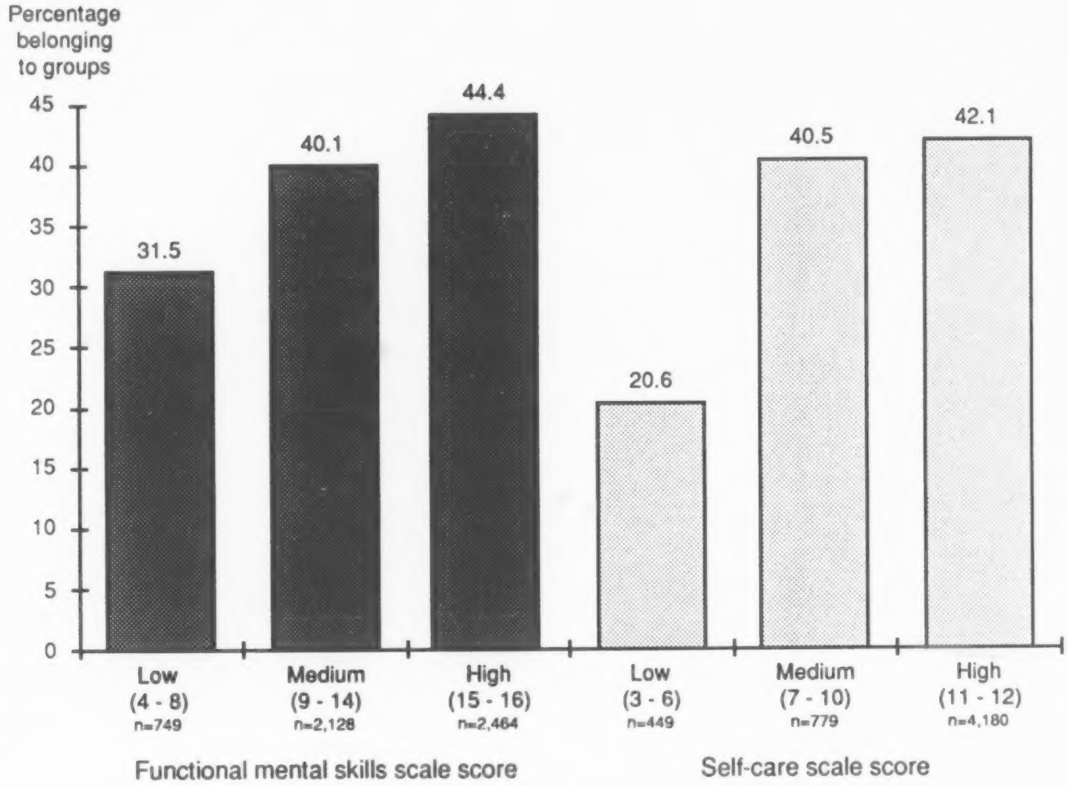

FIGURE 6-6 RELATIONSHIP OF GROUP MEMBERSHIP TO STUDENTS' FUNCTIONAL ABILITIES

Source: Parent interviews.

Factors Related to Group Participation

The three categories of factors that related to the friendship dimension of social involvement are hypothesized to relate in similar ways to the group participation dimension of social involvement. These include: the youth's individual, household, and community characteristics; other student activities and behaviors; and school characteristics (Otto, 1975 and 1976; Barker and Gump, 1964; Snyder, 1969; Lindsay, 1982; Spady, 1970; Holland and Andre, 1987). Relationships of these factors to students' participation in groups are discussed below.

Individual, Household, and Community Characteristics—The demographic characteristics that were demonstrated earlier to relate significantly to variations in involvement with friends also, for the most part, distinguish students who belonged to groups from those who did not (Table 6-10).

Table 6-10

RELATIONSHIP OF DEMOGRAPHIC CHARACTERISTICS TO GROUP PARTICIPATION OF SECONDARY SCHOOL STUDENTS

	Students Who Belonged to Groups in the Previous Year		
Youth Characteristics	%	S.E.	N
Individual characteristics			
Gender			
Male	39.9	2.0	3,335
Female	43.9	2.8	2,192
Age			
15 or 16	45.8	2.9	1,814
17 or 18	40.7	2.5	2,144
19 or older	33.1	2.8	1,569
Ethnicity			
Black	39.0	3.3	1,294
White	44.6	2.0	3,450
Hispanic	22.9	5.1	601
Household/community demographics			
Household income			
Less than $12,000	33.2	3.1	1,275
$12,000 to $24,999	39.7	3.1	1,445
$25,000 or more	53.5	2.6	2,182
Attended school in:			
Urban area	33.7	2.7	2,400
Suburban area	45.2	2.8	1,953
Rural area	45.1	2.8	1,174

Source: Parent interviews.

- *Age.* Variations in rates of group membership were not demonstrated for youth of different ages, except for those 19 years old and older. As mentioned earlier, because youth who were still in secondary school after age 19 tended to be more severely disabled, not participating in groups may have been due to the severity of disability rather than to age. However, when we examine the relationship of age to group membership for youth with the same disability, the relationship was sustained for most categories. For example, among deaf youth, 57% of those who were 15 or 16 belonged to groups, compared with 38% of those 19 or over.
- *Ethnicity.* Consistent with earlier findings regarding frequency of seeing friends, Hispanic youth (23%) were less likely to participate in groups than those who were white (45%; p<.001) or black (39%; p<.01). In multivariate analysis, no significant difference was found between minorities and nonminorities.
- *Socioeconomic status.* Students from higher-income households were more likely to be group members. Almost 54% of those from households with an income of $25,000 or greater participated in groups, compared with 40% of those from families earning between $12,000 and $25,000 (p<.001) and 33% of those from families earning less than $12,000 (p<.001). This relationship is stronger than was observed regarding the frequency with which youth saw friends, perhaps reflecting the higher financial demands of belonging to some kinds of groups (e.g., dues, uniforms, fees for activities) compared with the costs of seeing friends informally.
- *Urbanicity.* We would expect that more options for group memberships in urban settings might result in students in urban communities participating in group activities at a higher rate. Contrary to this expectation, NLTS data suggest that students attending urban schools were significantly less likely than others to belong to groups (34% vs. 45%; p<.05). Perhaps this relates to the fact that urban schools often have fewer resources and more students from poorer homes, factors that also related to lower group participation. Urban schools attended by more than 24% of students with disabilities had more than half of their student body come from low-income households, compared with 8% of students who attended suburban schools and 23% of those attending rural schools (p<.001).

Unlike relationships with frequency of seeing friends, we do not find that male and female students differed significantly in the rate at which they affiliated with groups.

Other Student Activities and Behaviors—Spending time at a job did not appear to prevent secondary school students from having the time to participate in group activities (Table 6-11). Among employed students, there was no significant bivariate relationship between group membership and the number of hours youth worked; multivariate analysis actually shows a higher likelihood of group membership for working students, other factors being equal.

Students who had had disciplinary problems, such as being suspended from school, fired from a job, or arrested, were significantly less likely to participate in groups than those who had not had such problems (32% vs. 43%; p<.05). Although group participation was linked with a lower rate of asocial behavior, the direction of the relationship is unclear. It is possible that youth who had appropriate social skills were the ones attracted to the values inherent in organized group participation. On the other hand, group participation could have reduced the incidence of asocial behaviors. For example, youth who belonged to school sports teams or bands might have been busy with practices and motivated to do their best, so that they were less prone to become involved in activities that might lead to disciplinary problems, such as being suspended from school or arrested.

Table 6-11

RELATIONSHIP OF OTHER SOCIAL ACTIVITIES TO STUDENTS' GROUP PARTICIPATION

	Students Who Belonged to a Group in the Previous Year		
Student Activities	%	S.E.	N
Student had a paid job			
Yes	44.7	2.7	1,637
No	39.2	2.0	3,872
Student had disciplinary problems			
Yes	31.5	4.2	486
No	43.0	1.8	4,989

Source: Parent interviews.

School Factors—Many extracurricular activities for secondary school students are sponsored by the schools they attend. Hence, characteristics of the schools or the students' school programs may relate to the rates at which students affiliated with groups.

- *Type of school attended.* Whether students attended a special school for youth with disabilities, a vocational school, or a comprehensive high school could influence both the availability of extracurricular activities and whether students with disabilities would feel comfortable participating in them. As seen in Table 6-12, almost a third of those attending special schools belonged to a group, a rate significantly lower than the participation rate of 43% for those who attended comprehensive secondary schools ($p<.01$). One might attribute this difference to the fact that attendance at a special school was strongly confounded with severity of disability. However, when disability and demographic variables were included in a multivariate analysis, special school students were more likely to have joined groups than were regular school students ($p<.05$).
- *School size.* Research on the general student population has shown that students from smaller schools participate in a greater number of activities than do students from larger schools (Lindsay, 1982; Barker and Gump, 1964; Grabe, 1981; Pittman and Haughwout, 1987). Contrary to this finding, the number of students attending the school was not related to whether students with disabilities participated in group activities. (Because school size is confounded with school type—special schools having fewer students and with those fewer students being more severely disabled—students attending special schools were not included in this particular analysis.)

Table 6-12

RELATIONSHIP OF SCHOOL FACTORS TO STUDENTS' GROUP PARTICIPATION

School Factors	Students Who Belonged to a Group in the Previous Year %	S.E.	N
Type of school attended			
General	43.1	1.9	3,434
Special school	31.6	3.9	1,319
Other	32.9	8.8	151
Average daily attendance†			
≤ 500 students	42.7	3.9	520
501 to 1,100 students	45.0	3.0	1,184
> 1,100 students	40.9	3.1	1,801
Percentage of hours mainstreamed†			
0%	34.4	5.3	427
1% to 25%	31.7	5.9	310
26% to 50%	34.6	4.7	461
51% to 75%	40.8	4.9	422
76% to 100%	54.7	3.5	1,178

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† Excludes schools that serve only youth with disabilities.

Source: Parent interviews.

- *Percentage of time in regular education classes.* An important goal of mainstreaming is to provide students with disabilities access to and constructive interaction with nonhandicapped peers (Johnson and Johnson, 1980). In keeping with this expectation, we find that for students who attended regular secondary schools, the greater the percentage of the day youth spent in regular education classrooms, the more likely they were to be group participants. For example, 55% of those who were mainstreamed for more than three-fourths of their instruction were group members, compared with 32% of those mainstreamed for one-fourth or less of their school day (p<.001). As with several other bivariate relationships, this finding is confounded by the influence of disability. Yet, within functional ability levels, the relationship was still significant. For example, among students with high functional abilities, 33% of those who were mainstreamed for half or less of the day belonged to groups, compared with 54% of those who were mainstreamed for more than half of the day (p<.01).

Multivariate Analysis of Factors Related to Being Group Members

A multivariate logit analysis was performed to identify the independent relationships between the rates at which secondary school students belonged to groups and the intercorrelated individual, household, community, behavioral, and school factors discussed above. Table 6-13 presents the results of this analysis.

Table 6-13

FACTORS RELATED TO GROUP PARTICIPATION AMONG SECONDARY SCHOOL STUDENTS

Variable	Coefficient	Change in Estimated Rate of Group Membership Amount	For Increment
Disability-related factors			
Disability category:[†]			
Emotionally disturbed	-.46**	-10.7	Emotionally disturbed vs. learning disabled
Speech impaired	.25	6.2	Speech impaired vs. learning disabled
Mentally retarded	.21	5.3	Mentally retarded vs. learning disabled
Visually impaired	.52**	12.9	Visually impaired vs. learning disabled
Hard of hearing	.24	5.9	Hard of hearing vs. learning disabled
Deaf	.52***	12.8	Deaf vs. learning disabled
Orthopedically impaired	.46*	11.4	Orthopedically impaired vs. learning disabled
Other health impaired	.14	3.6	Other health impaired vs. learning disabled
Severely impaired	.32	9.0	Severely impaired vs. learning disabled
Functional ability score	-.00	-.4	High vs. medium (16 vs. 12)
Self-care ability score	.05	3.5	High vs. medium (11 vs. 8)
IQ score	.01***	5.2	100 vs. 80
Demographic characteristics			
Older than typical age for grade	-.23*	-5.7	Yes vs. no
Youth was male	-.04	-.9	Male vs. female
Youth was a minority	-.12	-3.0	Minority vs. nonminority
Household characteristics			
From a single-parent household	-.06	-1.5	Yes vs. no
Household income	.14***	10.4	$38,000-$50,000 vs. <$12,000
Community characteristics			
Youth attended school in urban area	-.39***	-9.8	Urban vs. suburban
Youth attended school in rural area	.03	.8	Rural vs. suburban
Student activities/behaviors			
Youth had disciplinary problems	-.42**	-10.3	Yes vs. no
Youth was employed	.06***	5.7	Part-time job vs. not employed
School characteristics			
Average daily attendance (school size)	-.00	-.4	1,300 vs. 800
Attended special school	.46**	11.5	Yes vs. no
Percentage of day student mainstreamed	.00*	3.6	6 classes vs. 3 classes

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Note: The analysis includes youth who had been in school in the previous year (N = 2,925). Details on variables are in Appendix C. Means and standard deviations for the students included in this analysis and for all students in secondary schools are included in Appendix D, Table D6-3.

[†] Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Disability Characteristics—We continue to see significant differences in group membership rates associated with type of disability. Youth with emotional disturbances were significantly less likely than those with learning disabilities to belong to groups, and students classified as deaf, visually impaired, or orthopedically impaired were significantly more likely to be group members. IQ was positively and significantly related to group membership, independent of type of disability.

Demographic Characteristics—Relationships between group participation and demographic characteristics were similar in the multivariate analysis as in our earlier bivariate analyses. Youth who were older than their grade-level peers were less likely to be group participants ($p<.05$). Students in urban areas were significantly less likely than those in suburban settings to belong to groups ($p<.001$). We continue to see household income influencing students' participation in groups, with youth from wealthier households more frequently being group members ($p<.001$).

Student Activities and Behaviors—Youth who had had disciplinary problems (e.g., being suspended or expelled from school, fired from a job, arrested) were significantly less likely to belong to groups ($p<.01$), independent of a particular disability, such as emotional disturbance. (In contrast, we earlier reported that disciplinary problems were significantly related to seeing friends often.) Group membership, with its implied requirements to conform to the norms of an organized group, was apparently a different type of social activity than informally visiting with friends, and one that appealed significantly less to students who had had disciplinary problems.

Even when controlling for the nature of youths' disabilities and functional ability levels, we continue to see employment being positively related to group participation, again negating the concerns of those who argue that student employment inhibits social activity.

School Factors—The NLTS multivariate analysis of students with disabilities does not confirm findings of research on the general student population indicating that students from smaller schools are more involved in group activities than students from larger schools (Lindsay, 1982; Barker and Gump, 1964; Grabe 1981; Pittman and Haughwout, 1987). No significant relationship was found between school size and group membership.

Multivariate analysis supports the notion that there were social benefits to being mainstreamed; students who spent more hours in regular education classrooms not only were less likely to be socially isolated, but also were significantly more likely to participate in groups ($p<.05$), even when the nature and severity of the youth's disability was controlled. There apparently also were social benefits to attending a special school for students with common disability and demographic characteristics. Special school students were estimated to be 12 percentage points more likely to be group members than students with the same disability and functional ability levels ($p<.01$) in regular secondary schools.

Friendship Interactions of Out-of-School Youth

Once youth leave school, their social networks often change. If they do not go on to a postsecondary school, they no longer see friends and fellow students daily at school. They also no longer have access to the groups and other extracurricular activities sponsored by schools. If they are employed, their social opportunities include a network of coworkers, but their time to participate in social groups and other activities might decrease.

Among youth who had been out of secondary school up to 2 years, 11% were reported by parents to see friends either never or less than once a week. As seen in Figure 6-7, there was a wide range in the extent of being socially isolated for youth in different disability categories, with only 5% of those with learning disabilities being socially isolated, but almost half of youth classified as deaf/blind visiting with friends rarely (49%; p<.001).

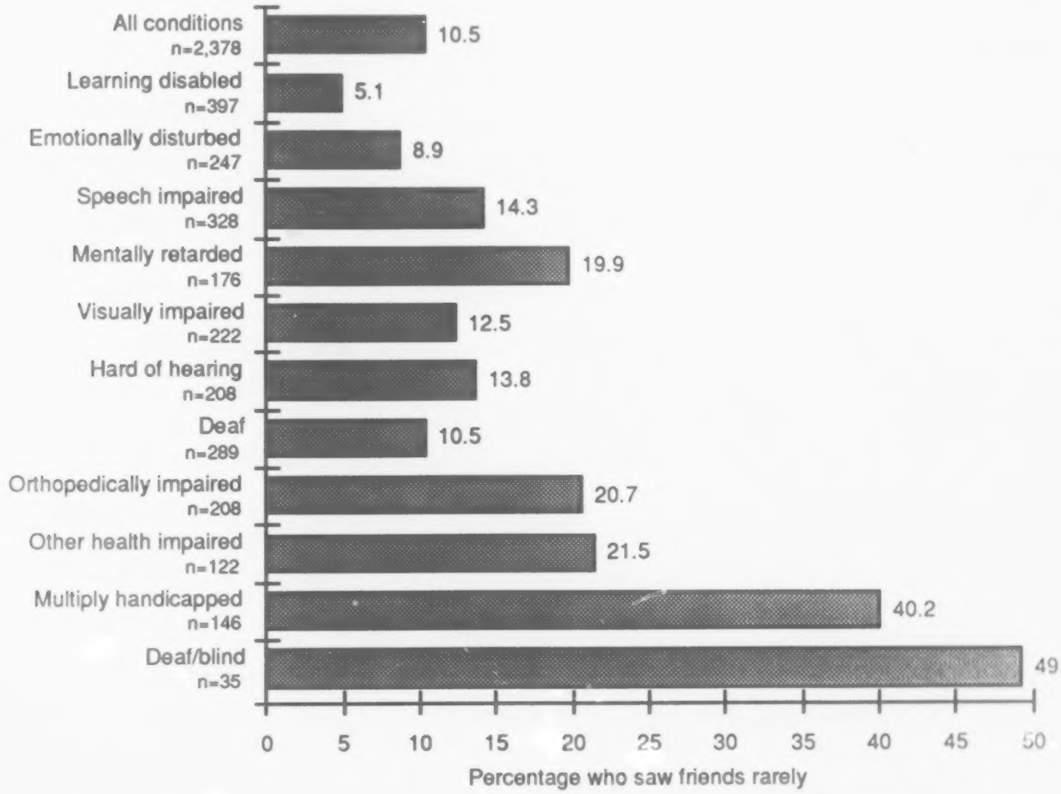

FIGURE 6-7 EXTENT OF SOCIAL ISOLATION AMONG OUT-OF-SCHOOL YOUTH WITH DISABILITIES

Source: Parent interviews.

At the other end of the spectrum, 38% of recently out-of-school youth saw friends 6 or more days a week. Again, we see a wide range in this behavior by disability (Table 6-14), with almost half of youth with emotional disabilities seeing friends often (47%) and 18% of those with multiple impairments seeing friends often (p<.001).

Overall, the pattern of relationship between the frequency of seeing friends and background characteristics, such as functional ability, gender, age, socioeconomic factors, urbanicity, and employment status, is the same for youth who were out of school for up to 2 years as for secondary school students. For example, youth with low functional abilities remained the least likely to be involved with friends, and males were more likely to see friends frequently than females.

Table 6-14

RELATIONSHIP OF DISABILITY TO FREQUENCY OF OUT-OF-SCHOOL YOUTH' SEEING FRIENDS[†]

	Percentage Who Saw Friends:			
Disability Category	Regularly (1-5/week)	Often (6-7/week)	S.E.	N
All conditions	62.2	37.8	2.5	1,998
Learning disabled	60.1	39.9	3.9	378
Emotionally disturbed	52.9	47.1	5.1	222
Speech impaired	70.5	29.5	5.6	153
Mentally retarded	68.4	31.6	3.9	259
Visually impaired	73.9	26.1	5.5	194
Hard of hearing	72.7	27.3	6.0	178
Deaf	66.4	33.6	4.9	252
Orthopedically impaired	80.2	19.8	5.9	164
Other health impaired	73.1	26.9	7.1	92
Multiply handicapped	81.8	18.2	7.4	89

[†] Excludes youth who never saw friends or saw friends less than once a week. Data for deaf/blind youth are not reported separately because there were too few cases, although they are included in all conditions.

Source: Parent interviews.

Because of differences in item wording, data regarding the friendship experiences of students and out-of-school youth are not precisely comparable. Parents of youth who were no longer in secondary school were asked how often youth got together socially with friends or family members, other than those he/she lived with. This question included getting together socially with friends *or family*, while respondents for students were asked only about time spent with friends. In addition, parents of students still in secondary school were asked only about friends seen "outside of school," while the question asked about youth no longer in secondary school did not include this phrase. However, it is still useful to contrast findings for the two groups to get a general indication of patterns of experiences for youth at these different transition stages.

Although one might expect the frequency of seeing friends to lessen for youth in the early years after secondary school, when school ceases to be the focal point for daily contacts, the rate of seeing friends was relatively stable. Almost 38% of out-of-school youth were reported by parents to see friends frequently, compared with 39% of secondary school students. Rates of social isolation also were similar for youth in school and those recently out of school (14% and 11%).

Did this stability of relationship continue as young people with disabilities spent a longer time out of secondary school? Although we cannot answer this question for youth in all disability categories, follow-up data collected as part of the 1989 NLTS exiter substudy (described in Chapter 1 and Appendix A) allow us to examine trends in social interactions over time. This substudy included youth who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded and who had been out of school between 2 and 4 years in 1989. Some reduction in interaction with friends as the years since high school increased is suggested in Table 6-15. In 1987, among youth who had been out of school between 1 and 2 years, 7% rarely saw friends, and 37% were at the other end of the social continuum, seeing friends 6 or 7 days a week. When these same youth were interviewed 2 years later, a significantly larger percentage rarely saw friends (17%; $p<.05$) and a significantly smaller percentage saw friends often (18%; $p<.001$). Some of this difference may result from the fact that the exiter substudy interview item asked about time spent with friends, but did not explicitly include seeing family members. However, even the differences in friendship patterns for youth out of school 2 to 3 years and those out of school 3 to 4 years, for whom the item wording was the same, suggest a reduction in levels of friendship interactions. This pattern was evident for youth in all categories except speech impaired.

Group Memberships of Out-of-School Youth

Parents of recently out-of-school youth with disabilities reported that 1 in 5 youth participated in groups. As indicated in Figure 6-8, youth categorized as emotionally disturbed were the least likely to participate in groups (10%), whereas those with visual (42%) or orthopedic impairments (37%) were the most likely to be group members ($p<.05$).

Table 6-15

VARIATIONS IN SOCIAL RELATIONSHIPS BY LENGTH OF TIME SINCE SECONDARY SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

	Percentage of Youth Who:							
	Saw Friends Rarely and Were Out of Secondary School:				Saw Friends Frequently and Were Out of Secondary School:			
Disability Category	0 - 1 Year	1 - 2 Years	2 - 3 Years	3 - 4 Years	0 - 1 Year	1 - 2 Years	2 - 3 Years	3 - 4 Years
Youth in all 4 categories	8.0	6.9	13.1	17.0	38.6	37.1	31.6	17.7
	(2.4)	(2.4)	(3.0)	(3.5)	(4.6)	(4.7)	(4.5)	(3.9)
N	398	357	402	354	359	327	345	284
Learning disabled	5.0	5.6	11.5	13.2	45.1	36.0	34.0	13.7
	(2.9)	(3.0)	(4.1)	(4.4)	(6.7)	(6.4)	(6.5)	(4.8)
N	130	159	135	157	124	152	121	136
Emotionally disturbed	7.8	5.4	11.5	13.1	37.8	59.7	32.0	32.5
	(4.5)	(4.9)	(5.4)	(7.3)	(8.5)	(11.0)	(8.2)	(11.4)
N	87	58	85	59	80	55	75	46
Speech impaired	13.9	19.7	11.0	8.0	29.4	31.9	26.5	26.5
	(7.1)	(9.5)	(6.4)	(6.9)	(9.3)	(12.5)	(9.8)	(11.8)
N	63	41	63	37	58	33	54	33
Mentally retarded	15.3	9.8	18.7	28.5	20.9	31.8	24.6	22.3
	(5.0)	(4.6)	(5.4)	(6.8)	(6.2)	(7.6)	(6.7)	(7.4)
N	102	89	103	92	84	80	81	64

Note: Standard errors are in parentheses.

Source: 1987 parent interviews and 1989 parent/youth interviews.

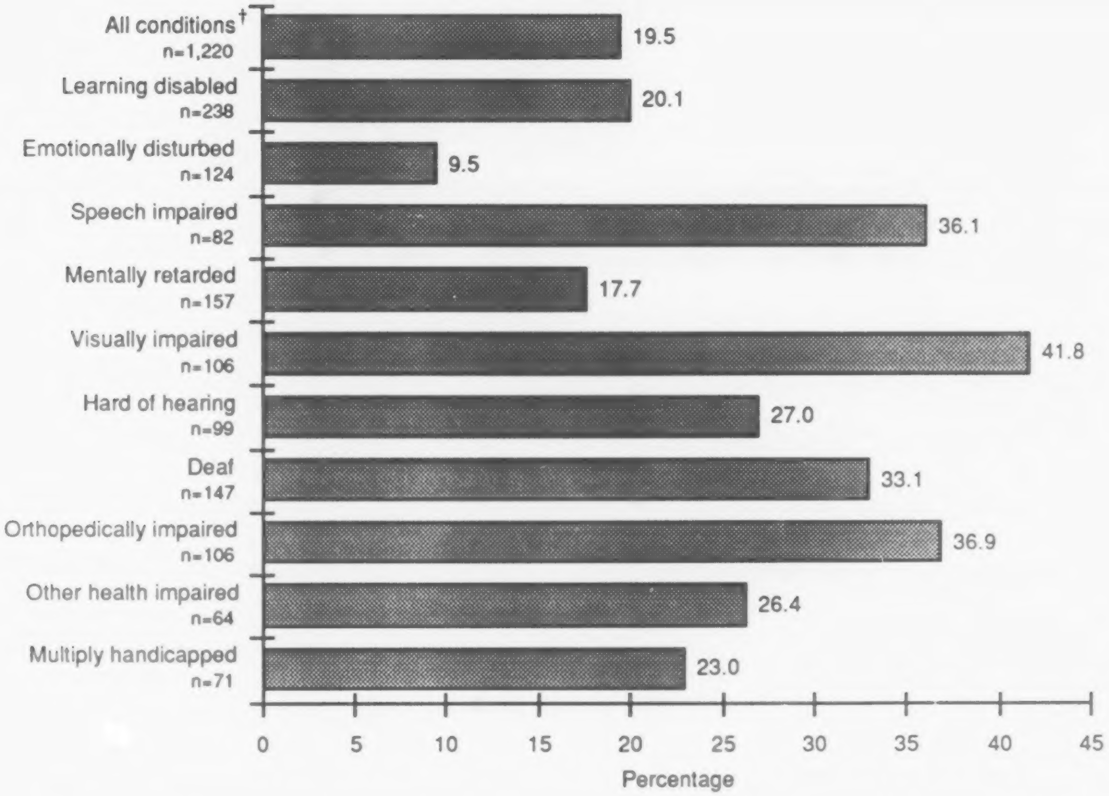

FIGURE 6-8 PERCENTAGE OF OUT-OF-SCHOOL YOUTH WITH DISABILITIES WHO BELONGED TO GROUPS

† "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

The majority of out-of-school youth who were group members belonged to only one group (71%), although about one-quarter participated in two or more groups. Community groups, including church, political, and social groups, were the most popular types of affiliations (55%); closely followed by participation on sports teams (46%).

The relationship between group participation and self-care abilities, gender, age, ethnicity, and socioeconomic status were generally similar for secondary school students and out-of-school youth with disabilities. For example, 35% of out-of-school youth from households with incomes of $25,000 or more belonged to groups, compared with 19% from households with incomes of less than $12,000 (p<.01). Functional mental skills were not significantly related to group participation for out-of-school youth, as they were for students. Perhaps adult community groups were more accepting of a wider range of differences in their membership than were school-based groups.

Although the frequency of interactions with friends appeared stable for youth who were out of secondary school up to 2 years, compared with those still in school, rates of group membership were significantly lower. Youth who had left secondary school were significantly less likely to belong to a group than those still in secondary school, with 20% of out-of-school youth with disabilities participating in groups, compared with 41% of secondary school students (p<.001).

Using data from the exiter substudy for youth who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded, we see that rates of group participation continued to decline as more years elapsed since high school (Table 6-16). For example, among youth who had been out of secondary school between 2 and 3 years, 17% belonged to a group, whereas 28% of those youth had belonged to a group 2 years earlier (p<.05). Some of this difference might be due in part to a difference in the wording of the questions in the two interviews. During the second interview, respondents were asked whether the youth participated in groups "now." The time frame for a similar question during the first interview was "in the past 12 months." However, the rates of group participation for those out of school 2 to 3 years and those out of school 3 to 4 years, for whom the item wording was the same, also suggest a slight downward trend in group participation. This pattern is similar for youth in all categories except speech impaired.

Table 6-16

VARIATIONS IN FREQUENCY OF GROUP MEMBERSHIP BY LENGTH OF TIME SINCE HIGH SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

	Percentage of Youth Who Belonged to Groups Among Those Out of High School:			
Disability Category	0 - 1 Year	1 - 2 Years	2 - 3 Years	3 - 4 Years
All four conditions	27.9	18.7	16.7	13.6
	(3.9)	(3.5)	(3.3)	(3.1)
N	406	375	419	377
Learning disabled	28.6	19.0	15.3	14.3
	(5.8)	(5.0)	(4.6)	(4.5)
N	133	165	140	165
Emotionally disturbed	25.1	11.1	19.4	5.7
	(7.1)	(6.5)	(6.5)	(4.7)
N	91	63	92	66
Speech impaired	42.4	45.9	21.5	29.4
	(10.1)	(11.8)	(8.4)	(11.1)
N	64	42	64	40
Mildly or moderately mentally retarded	26.3	18.6	18.5	13.8
	(6.1)	(5.8)	(5.3)	(5.1)
N	102	95	106	97

Note: Standard errors are in parentheses.

Source: 1987 parent interviews and 1989 parent/youth interviews.

Marital Status of Out-of-School Youth

For youth no longer in secondary school, a further measure of social integration is marital status. As stated by Fisher (1989) in his review of independent living literature, "perhaps the most significant level of social interaction that one expects of an adult is in the area of building sex roles and relationships" (p. 112).

As indicated in Figure 6-9, among youth out of school up to 2 years, 6% were married or living with someone of the opposite sex. This compares with 16% of High School and Beyond youth who had been out of school for 2 years (CES, 1987). Figure 6-10 demonstrates that youth classified as learning disabled and hard of hearing were the most likely to be married (9% and 7%). None of those classified as multiply handicapped who had been out of secondary school up to 2 years were married or living with someone of the opposite sex, and only 2% of those with orthopedic impairments were.

Young women were significantly more likely to be married than men, with 13% of females who were out of school up to 2 years being married, compared with 4% of men ($p<.05$). Those who had dropped out of high school also were significantly more likely to have gotten married

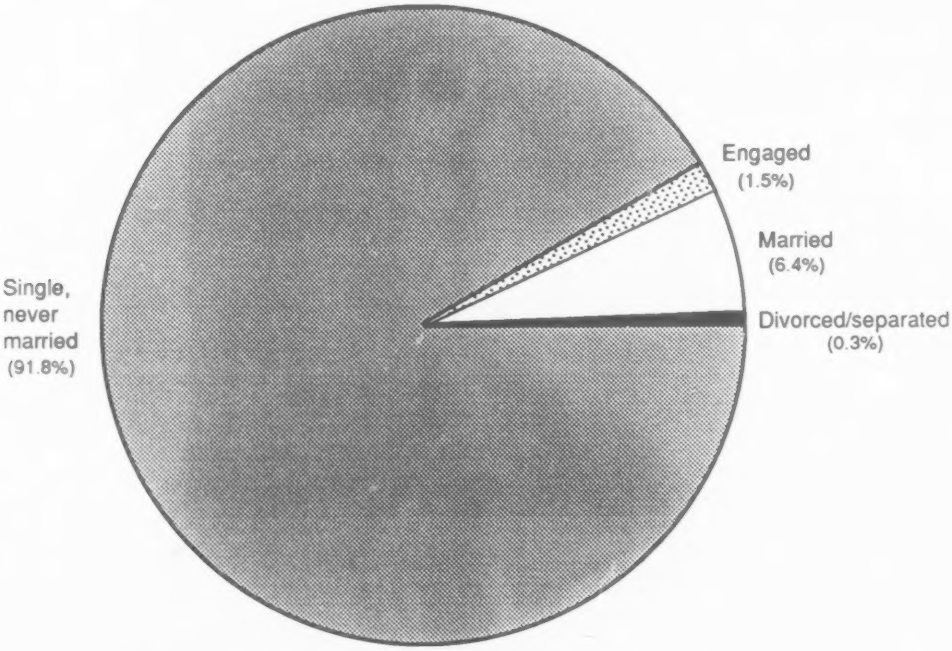

FIGURE 6-9 MARITAL STATUS OF OUT-OF-SCHOOL YOUTH WITH DISABILITIES (n=1,949)

Source: Parent interviews.

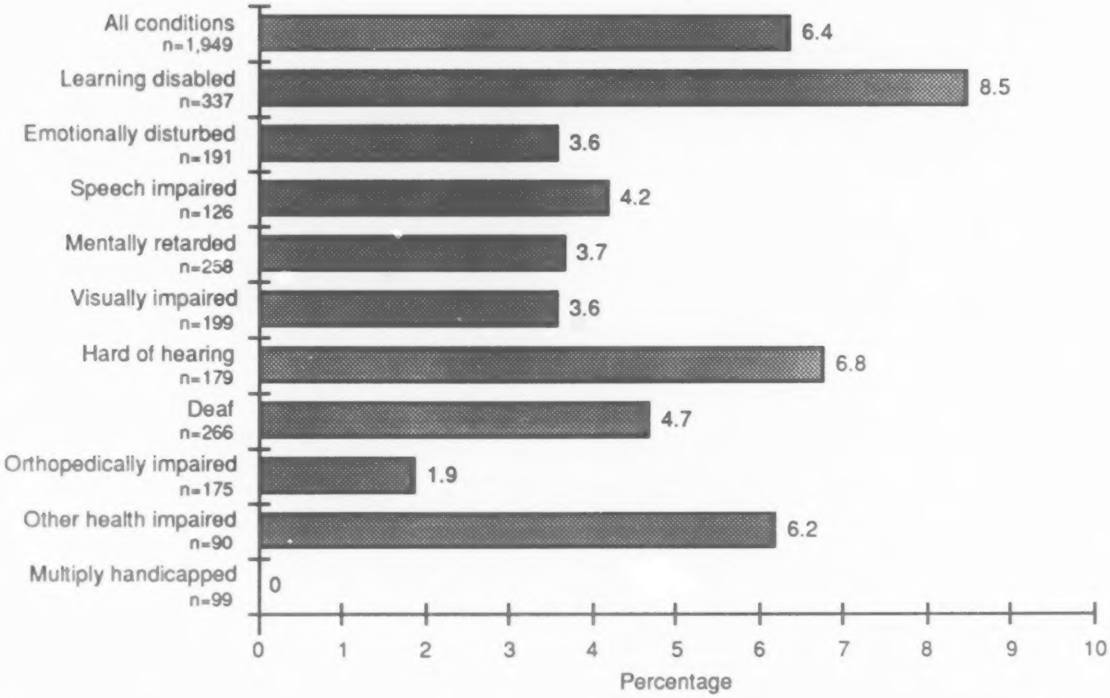

FIGURE 6-10 PERCENTAGE OF OUT-OF-SCHOOL YOUTH WHO WERE MARRIED

Note: Data for deaf/blind youth are not reported separately because there were too few cases, although they are included in "All conditions."

Source: Parent interviews.

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than those who had graduated or aged out. As seen in Table 6-17, 4% of high school graduates were married, compared with 18% of dropouts. This difference is virtually entirely due to the significantly higher marriage rate among female dropouts. Table 6-17 shows that, whereas the difference in marriage rates was only 5 percentage points for males (3% for graduates vs. 8% for dropouts), the difference was 31 percentage points for females. Almost 40% of young women with disabilities who had dropped out of high school were married, compared with 9% of girls who had graduated ($p<.05$). This is consistent with the reasons given by parents for why youth dropped out of high school; marriage was among the most common reasons reported for daughters' leaving high school (23% of female dropouts).

Table 6-17

RELATIONSHIP OF GENDER AND SCHOOL COMPLETION STATUS TO MARITAL STATUS

School Completion Status and Gender	Youth Who Were: Single %	Single S.E.	Engaged %	Engaged S.E.	Married %	Married S.E.	N
Graduated	94.3	1.4	1.1	.7	4.5	1.3	1,406
Male	96.7	1.3	.6	.6	2.7	1.2	842
Female	88.9	3.4	2.2	1.6	8.6	3.0	564
Aged out	95.0	2.2	2.1	1.4	2.8	1.7	353
Male	94.0	3.0	2.3	1.9	3.7	2.4	215
Female	96.5	3.1	1.9	2.3	1.5	2.0	138
Dropped out	77.4	6.2	3.1	2.6	18.2	5.8	176
Male	89.6	5.4	.6	1.3	8.0	4.8	124
Female	51.4	13.7	8.6	7.7	39.9	13.5	52

Source: Parent interviews.

In the general population, the rate of marriage increases as youth age and are out of secondary school longer. This pattern holds true for youth in the four disability categories included in the exiter substudy as well. Table 6-18 shows that, among out-of-school youth in the exiter substudy who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded, the frequency with which youth were married or living with someone of the opposite sex was higher in later years for youth in all categories, although the differences were not statistically significant. For example, among youth who had been out of secondary school for 3 to 4 years, 17% were married or living with someone of the opposite sex, compared with 10% of those youth 2 years previously. This rate of 17% is still substantially lower than the 28% reported by High School and Beyond for youth who had been out of school 4 years (CES, 1987). In addition, the percentage of those planning to marry increased during this time; 1% were engaged when they had been out of school up to 2 years, and 7% were engaged 2 years later (p<.01).

Table 6-18

VARIATIONS IN MARITAL STATUS BY LENGTH OF TIME SINCE HIGH SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

		Percentage of Youth Who Were Married or Living with Someone of the Same Sex Among Youth Who Were Out of High School:			
Disability Category		0 - 1 Year	1 - 2 Years	2 - 3 Years	3 - 4 Years
All four categories		.2	10.3	15.2	17.3
		(.4)	(2.9)	(3.1)	(3.4)
	N	300	346	425	382
Learning disabled		.0	13.3	16.6	19.9
		(.0)	(4.4)	(4.7)	(5.0)
	N	97	156	140	170
Emotionally disturbed		.0	5.6	12.9	14.2
		(.0)	(5.0)	(5.5)	(7.0)
	N	56	57	93	66
Speech impaired		3.2	9.8	5.5	13.8
		(4.0)	(7.9)	(4.5)	(8.4)
	N	53	35	67	40
Mentally retarded		.0	4.4	13.8	12.0
		(.0)	(3.1)	(4.7)	(4.8)
	N	80	89	108	97

Note: Standard errors are in parentheses.

Source: 1987 parent interviews and 1989 parent/youth interviews.

Youth Who Were Arrested

In contrast to young people who are positively integrated into society, some youth fail to follow social and legal rules and exhibit a variety of forms of asocial behavior. Although these behaviors vary in the seriousness of their consequences, some asocial behaviors are not tolerated by society. When such behaviors are exhibited in school, youth can be suspended or expelled. When such behaviors are exhibited on the job, youth can be fired. When asocial behaviors violate the laws of society at large, they can result in arrest. The frequency of youth with disabilities being arrested is the focus of this section.

Overall, 12% of youth with disabilities were reported by parents to have been arrested at some time in their lives. As shown in Table 6-19, 9% of secondary school students with disabilities were reported by parents to have been arrested; the rate was significantly higher for youth who were out of school up to 2 years (19%; p<.001).

Much of the arrest rate for youth with disabilities overall was attributable to youth who were classified as emotionally disturbed. Almost 20% of these youth who were still in secondary school had been arrested, a significantly higher arrest rate than that for students with disabilities as a whole (p<.001). By the time they had been out of school up to 2 years, almost 35% of youth classified as emotionally disturbed had been arrested, compared with 19% for out-of-school youth with disabilities as a whole (p<.001).

Youth classified as learning disabled were the next most likely to have been arrested. The arrest rates for students with disabilities other than emotional disturbances ranged from no arrests (those classified as deaf/blind) to 9% (those classified as learning disabled), and for out-of-school youth from no arrests to 21% (again those classified as deaf/blind or learning disabled, respectively).

Table 6-19 suggests that youth with more severe disabilities were the least likely to have been arrested. Yet when severity of disability was analyzed within each of the disability categories, using the functional mental skills and self-care ability scales, there were no significant differences in arrest rates for youth in each disability category who received low, medium, or high scores, except for those with low self-care ability scores (none of them ever had been arrested). For example, 3% of deaf youth with low functional mental skills had been arrested, compared with 4% of those with medium scores and 3% of those with high scores.

Table 6-19

ARREST RATES OF YOUTH WITH DISABILITIES

	Youth Who Were Arrested Among:					
	Secondary School Students			Out-of-School Youth		
Primary Disability Category	%	S.E.	N	%	S.E.	N
All conditions	9.0	1.1	4,285	18.9	1.8	2,505
Learning disabled	9.0	1.7	515	20.7	3.0	420
Emotionally disturbed	19.8	3.0	334	34.8	4.4	271
Speech impaired	5.3	1.8	281	13.1	4.0	182
Mentally retarded	6.7	1.4	540	11.4	2.4	344
Visually impaired	3.7	1.6	498	2.3	1.7	234
Hard of hearing	6.0	2.0	456	8.0	3.3	220
Deaf	2.7	1.3	471	4.9	2.0	304
Orthopedically impaired	2.4	1.3	429	4.0	2.4	215
Other health impaired	4.2	1.7	294	7.9	3.8	126
Multiply handicapped	3.0	1.5	424	.8	1.3	153
Deaf/blind	.0	.0	43	.0	.0	36

Source: Parent interviews.

To put these arrest rates into perspective, the NLTS has calculated the rate of arrest for two comparison groups of youth from the general population using data from the National Longitudinal Survey of Youth (NLSY; U.S. Department of Labor). Both groups were ages 15 to 20; one group represents the general population of youth as a whole, and the second represents youth from the general population who have the same distribution as youth with disabilities on key demographic characteristics, including gender, ethnic background, and head-of-household education. (The NLSY database is described more fully in Appendix A.)

Table 6-20 compares arrest rates of youth aged 15 to 20 for (1) youth with disabilities, based on the NLTS; (2) youth with demographic characteristics similar to those of youth with disabilities, based on reweighted data from the NLSY; and (3) the general population of youth, based on the NLSY. These comparisons show that youth with disabilities were significantly more likely to have been arrested than were youth in general. Overall, 12% of youth with disabilities aged 15 to 20 had been arrested, compared with 8% in the general population (p<.001). Yet when demographic differences between youth with disabilities and the general population were accounted for, there was no significant difference in the arrest rate between youth with disabilities and the comparison group (12% vs. 10%), suggesting that much of the higher arrest rate for youth with disabilities resulted from the fact that they were disproportionately black, poor, and male, all characteristics associated with higher arrest rates. This pattern of a higher arrest rate for youth with disabilities

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Table 6-20

COMPARISON OF ARREST RATES FOR YOUTH WITH DISABILITIES AND THE GENERAL POPULATION OF YOUTH†

		Gender		School Status	
Youth Characteristics	All Youth	Male	Female	In School	Out of School
Percentage of youth arrested among:					
Youth with disabilities	12.2	15.9	4.3	9.1	20.3
	(1.0)	(1.4)	(1.1)	(1.1)	(2.2)
N	5,740	3,463	2,277	4,137	1,603
Youth in the general population with demographic characteristics similar to youth with disabilities	9.6	12.6	2.9	7.8	16.7
	(.6)	(.9)	(.5)	(.7)	(1.4)
N	5,694	2,924	2,770	3,597	1,697
Youth in the general population (total)	7.8	12.3	3.0	5.8	12.7
	(.5)	(.9)	(.5)	(.6)	(1.3)
N	5,694	2,924	2,770	3,597	1,697

Note: Standard errors are in parentheses.

† For youth aged 15 to 20.

Source: For youth with disabilities: NLTS parent interviews.
For the general population of youth: NLSY youth interviews.

being moderated when compared with youth from the general population with similar demographic characteristics holds true for males and females, as well as for those in and out of secondary school.

Factors Related to Arrest Rates

Arrest rates among youth with disabilities differed widely for youth who varied on several other characteristics that were suggested in the conceptual framework presented earlier in Figure 6-1. Because the relationship of other youth background characteristics to arrest rates is similar for in-school and out-of-school youth, these relationships will be discussed for the two groups combined. Unlike earlier sections of this chapter, here we focus only on background characteristics of youth, their households, and their communities. Because the arrests we have recorded for youth could have occurred at any point in their lives, we are unable to relate recent activities (e.g., how often they saw friends, whether they belonged to groups or dropped out of school) to arrest rates in a causal sense, because these activities and behaviors may have occurred after the arrest, not before.

As indicated in Table 6-21, males were almost four times as likely as females to have been arrested (16% vs. 4%; $p<.001$). As suggested by the higher arrest rate for those who were out of secondary school, age also was related to arrest rates. For example, youth who were 17 or 18 were significantly more likely than those who were younger to have been arrested (16% vs. 8%; $p<.01$). Youth who were black (17%) and those from lower-income households (14%) were significantly more likely than white (10%; $p<.01$) or more affluent youth (10%; $p<.05$) to have been arrested. Further, 16% of youth from one-parent households had been arrested, compared with 10% from two-parent households ($p<.01$). Those who lived in urban as opposed to rural communities also were more likely to have been arrested (14% vs. 9%; $p<.05$).

Results of a multivariate logit analysis support the findings presented above regarding the kinds of youth who were more likely to have been arrested. Table 6-22 indicates that those with emotional disturbances were estimated to be 16 percentage points more likely than the comparison group of youth with learning disabilities to have been arrested ($p<.001$), even when differences in other demographic factors were controlled. In contrast, those in all other categories except mentally retarded and other health impaired were significantly less likely than those classified as learning disabled to have been arrested. Controlling for disability category, higher self-care abilities and higher IQ both were significantly related to higher arrest rates; functional mental skills scale scores were not.

Several of the demographic characteristics we examined continued to be significantly related to arrest rates when disability characteristics were controlled. Males were estimated to be 9 percentage points more likely than females to have been arrested, other factors being equal ($p<.001$). Even controlling for household income and urbanicity, youth from single-parent

Table 6-21

RELATIONSHIP OF YOUTH BACKGROUND CHARACTERISTICS TO ARREST RATES

Youth Background Characteristics	Youth Ever Arrested		
	%	S.E.	N
Individual characteristics			
Gender			
Male	15.8	1.3	4,113
Female	4.2	1.0	2,677
Age			
15 or 16	7.7	1.5	1,837
17 or 18	15.8	1.8	2,250
19	13.2	2.4	991
20 or older	11.9	1.8	1,712
Ethnic background			
Black	17.0	2.3	1,616
White	9.6	1.1	4,243
Hispanic	13.6	3.8	711
Household/community demographics			
Household income			
Less than $12,000	14.5	2.1	1,576
$12,000 to $24,999	12.9	1.8	1,927
$25,000 or more	9.9	1.4	2,642
Youth come from:			
Single-parent household	16.1	1.9	2,276
Two-parent household	9.7	1.0	4,385
Attended school in:			
Urban area	14.1	2.0	2,208
Suburban area	10.5	1.6	1,834
Rural area	9.0	1.5	1,074

Source: Parent interviews.

households and minorities were significantly more likely to have been arrested (p<.01 and .001), just as they were more likely to see friends often. Perhaps these findings result from less parental oversight in one-parent households, particularly if the single parents were working outside of the home and were not present to monitor youths' activities.

Although urbanicity and household income were significantly related to being arrested in earlier analyses, when included in a multivariate analysis, these variables no longer were significantly related to arrest rates.

Table 6-22

FACTORS RELATED TO YOUTHS' EVER HAVING BEEN ARRESTED

Variable	Coefficient	Change in Estimated Arrest Rate	
		Amount	For Increment
Disability-related factors			
Disability category:†			
Emotionally disturbed	1.00***	15.8	Emotionally disturbed vs. learning disabled
Speech impaired	-.52*	-8.0	Speech impaired vs. learning disabled
Mentally retarded	-.14	-1.5	Mentally retarded vs. learning disabled
Visually impaired	-1.69***	-10.2	Visually impaired vs. learning disabled
Hard of hearing	-.96***	-7.4	Hard of hearing vs. learning disabled
Deaf	-1.36***	-9.2	Deaf vs. learning disabled
Orthopedically impaired	-.97**	-7.5	Orthopedically impaired vs. learning disabled
Other health impaired	-.38	-3.6	Other health impaired vs. learning disabled
Severely impaired	-.62**	-5.5	Severely impaired vs. learning disabled
Functional ability score	-.03	-.8	High vs. medium (16 vs. 12)
Self-care ability score	.41***	5.3	High vs. medium (11 vs. 8)
IQ score	.01***	1.8	100 vs. 80
Demographic characteristics			
Age	.12***	3.0	19 vs. 15
Youth was male	1.37***	9.0	Male vs. female
Youth was a minority	.47***	3.5	Minority vs. nonminority
Household characteristics			
From a single-parent household	.30**	2.9	Yes vs. no
Household income	-.03	-.07	$38,000-$50,000 vs. <$12,000
Community characteristics			
Youth attended school in urban area	.19	1.4	Urban vs. suburban
Youth attended school in rural area	-.06	-.4	Rural vs. suburban

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Note: The analysis includes youth who had been in school in the previous year (N = 6,470). Details on variables are in Appendix C. Means and standard deviations for the students included in this analysis and for all students in secondary schools are included in Appendix D, Table D6-4.

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* p < .05; ** p < .01; *** p < .001.

Other Behaviors and Activities of Youth Who Had Been Arrested

The picture these findings paint of youth who were more likely to be arrested highlights the kinds of youth who were having difficulty fitting in with the norms of society at large. This difficulty was evident in other aspects of their lives as well, as depicted in Table 6-23.

In their most recent year in secondary school, youth who at some time had been arrested were absent from school significantly more often than students who had never been arrested (24 days vs. 13 days on average; p<.001) and were significantly more likely to have failed one

Table 6-23

OTHER ACTIVITIES AND BEHAVIORS OF YOUTH WHO HAD BEEN ARRESTED

Youth Activities/Behaviors	Youth Who Had Been Arrested %	S.E.	N	Youth Who Had Never Been Arrested %	S.E.	N
School performance in most recent school year						
Percentage of youth who had failed a course	49.2	5.8	299	27.1	1.7	4,137
Average days absent	23.9	2.3	272	13.4	0.5	3,778
School completion						
Percentage who dropped out	27.5	3.9	527	6.9	0.8	6,220
Social activities						
Percentage who belonged to a school/ community group	23.8	3.8	520	39.8	1.5	6,202
Percentage who saw friends often (6 to 7 days/week):	48.8	4.5	499	31.6	1.5	6,048

Source: Parent interviews.

or more courses (49% vs. 27%; p<.001). Not surprisingly, the dropout rate also was significantly higher for those who had been arrested; 27% of those who had been arrested had dropped out rather than staying in school or graduating, compared with 7% of youth who had never been arrested (p<.001).

In areas of life outside of school, it is interesting to note that our two measures of social integration, the frequency of seeing friends and whether youth belonged to a school or community group, related to being arrested in opposite ways. Those who had been arrested were significantly less likely than other youth to have been group members (24% vs. 40%; p<.001), whereas they were significantly more likely to see friends very frequently (49% vs. 32%; p<.001).

Although we do not know the causal relationships among these various outcome measures, the data are compelling in suggesting that youth who were arrested also were experiencing a cluster of negative outcomes that do not bode well for their ultimate social or financial independence.

Rates of Subsequent Arrest for Youth Out of Secondary School 2 to 4 Years

Knowing the troubled transition experiences of youth who had been arrested while they were in secondary school or up to 2 years after secondary school, we wondered whether the problem was growing after secondary school. Was there an increasing incidence of youth having such trouble fitting in that they were arrested for their actions? Data from the NLTS exiter substudy for youth who were out of school 2 to 4 years and classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded offer some disturbing suggestions. Table 6-24 demonstrates that among youth in the selected disability categories who were out of school up to 2 years, 19% had been arrested at some time in the past. Seven percent were arrested for the first time in the subsequent 2-year period, when they had been out of secondary school between 2 and 4 years. Not only was the rate of initial arrest highest for youth with emotional disturbances (35%), the rate at which youth were arrested for the first time in the subsequent 2 years also was highest for those youth (12%). Analyses from the second wave of the NLTS will permit us to determine whether this rate of arrest continued as youth aged.

Table 6-24

SUBSEQUENT ARRESTS FOR YOUTH OUT OF SECONDARY SCHOOL 2 TO 4 YEARS

Arrest Experience	All Four Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mildly/ Moderately Mentally Retarded
Percentage of youth:					
Out of school up to 2 years who had ever been arrested	18.7 (2.4)	18.5 (3.5)	35.4 (6.1)	14.4 (5.4)	11.5 (3.2)
Out of school 2 to 4 years who had been arrested for the first time in the previous 2 years	7.4 (1.6)	7.9 (2.4)	11.8 (4.1)	1.6 (1.9)	4.5 (2.1)
N	796	305	156	107	202

Note: Standard errors are in parentheses.

Source: 1987 parent interviews and 1989 parent/youth interviews.

Summary

The questions that have guided our inquiry and their answers are summarized below:

Social Isolation

- To what extent were secondary school students with disabilities socially isolated? A small percentage of students were relatively socially isolated (14%), either never seeing friends or seeing them less than once a week. Severely disabled students were the most likely to be socially isolated, with 44% of youth classified as multiply handicapped and 65% of those classified as deaf/blind never or rarely seeing friends.
- What characteristics of students, their households, and/or their schools were related to being socially isolated? The extent of social isolation was higher for students who were lower functioning, female, and older than their peers. In addition, social isolation was more common among students taking fewer regular education classes, other factors being equal.

- How did the rate of being socially isolated change once youth were no longer in secondary school? Rates of social isolation were similar for secondary school students and those recently out of school. As the length of time since leaving secondary school increased, for youth in the exiter substudy, there was a significant increase in the percentage who saw friends rarely.

Seeing Friends Frequently

- Among students who did see friends, to what extent did they see friends often (6 or more days a week)? Among students who saw friends at least weekly, almost 40% saw friends 6 or more days a week. Youth with emotional disabilities were significantly more likely than youth with disabilities as a whole to see friends often.
- What characteristics of students, their households, and/or their schools were related to seeing friends frequently? Boys were significantly more likely than girls to see friends frequently (42% vs. 32%). Among students who saw friends at least weekly, positive measures of social integration, such as being employed or belonging to groups, were not related to the frequency of seeing friends. Conversely, having had disciplinary problems, such as being suspended or expelled from school, fired from a job, or arrested, were significantly related to seeing friends frequently.
- How did the rate of seeing friends frequently change once youth were no longer in secondary school? Although one might expect youth to see friends less often in the early years after secondary school, when school ceased to be the focal point for daily contacts, the rate of seeing friends frequently was relatively stable in the first 2 years after high school. As the length of time since leaving secondary school increased, for youth in the exiter substudy, there was a significant decrease in the percentage who saw friends often.

Group Memberships

- To what extent did students with disabilities participate in groups? Overall, 41% of secondary school students were reported by parents to have belonged to a school or community group in the previous year. Group membership rates were significantly lower for students categorized as multiply handicapped (30%), mentally retarded (33%), or emotionally disturbed (34%) than for other youth with disabilities.
- What characteristics of students, their households, and their schools were related to group participation? Students from higher-income households were more likely to be group participants. Spending time at a job did not appear to prevent secondary school students from having the time to participate in group activities. Students who were older than their peers, those attending schools in urban areas, and those who exhibited asocial behaviors were less likely to participate in groups when disability, demographic, and school factors were controlled.

  Although attending regular education classes was an academic challenge for many students with disabilities, there appeared to be social benefits to mainstreaming. Among students who attended regular secondary schools, the more time spent in regular education classrooms, the more likely students were to be group participants, even when controlling for severity of disability. Students who spent more time in regular education classes also were less likely to be socially isolated when controlling for differences in students' disabilities, functional levels, and demographics.

- How did the rate of group participation change once youth were no longer in secondary school? Rates of group membership for youth who were out of secondary school were about half the rates of those still in school (20% vs. 41%). Rates continued to decline marginally in the subsequent 2 years for youth in the disability categories included in the exiter substudy.

Marriage

- To what extent were out-of-school youth with disabilities married? Among youth out of school for up to 2 years, 6% were married or living with someone of the opposite sex. Youth classified as learning disabled and hard of hearing were the most likely to be married. None of those with multiple impairments married during the first 2 years after secondary school. Among youth in the disability categories included in the exiter substudy, 17% were married or living with someone of the opposite sex between 2 and 4 years after secondary school.
- What characteristics of youth and their households were related to the probability of getting married? Young women and those who had dropped out of high school were significantly more likely to be married than men or those who had graduated or aged out.
- To what extent had youth with disabilities been arrested? Overall, 12% of youth with disabilities were reported by parents to have been arrested at some time in their lives; 9% of secondary school students and 19% of youth out of school up to 2 years had been arrested. Much of the arrest rate for youth with disabilities overall was attributable to youth who were classified as emotionally disturbed. For youth in the disability categories included in the exiter substudy who were interviewed when they were out of school between 2 and 4 years, more than 7% had been arrested for the first time in the previous 2 years.
- What characteristics of youth were related to having been arrested? Youth classified as learning disabled were the next most likely ever to have been arrested. Males were almost four times as likely as females to have been arrested. Minorities and those from single-parent households were significantly more likely to have been arrested, other factors being equal.
- What other activities or behaviors were more common to youth who had been arrested than to others? We see a cluster of poor transition outcomes occurring for youth who had at some time been arrested. Youth who had been arrested were much more likely to see friends frequently and were much less likely to have belonged to organized school or community groups than youth who had never been arrested. They were significantly more likely to be absent from school frequently, to receive failing course grades, and to drop out of school than youth who had never been arrested.

This chapter has focused on several aspects of social integration, including social isolation, frequency of seeing friends, group participation, and, as an indicator of asocial integration, arrest rates. We have examined the relationship of these behaviors to many characteristics of the youth, their households, and their schools. Yet, beyond the individual relationships we have reported, we recognize the importance in the social domain of the basic personalities and motivations of youth. These underlying, unmeasured personality traits may be more powerful predictors of youths' social integration than many of the measured factors we have examined. Although we have not directly measured personality traits, our findings offer some suggestions regarding these underlying characteristics.

When we look across selected findings in this chapter, they project the image of a group of competent students or young adults who saw friends regularly (yet because of a commitment to other productive engagements, such as school or work, not too frequently), who affiliated with groups, and who were not involved in asocial behaviors that led to arrest. We also have seen their peers, many of whom were severely disabled, who did not participate in friendships and who experienced relative social isolation. A third group of youth also has emerged—those who spent considerable time with friends but did not participate in organized groups, and who were more likely to be arrested. Other chapters suggest that these same youth were less likely to attend school, more likely to fail classes, and more likely to drop out. They were youth who appeared to be unable or unwilling to follow society's norms. Later analyses of the NLTS will examine what the short-term future has had in store for these three groups of youth.

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7 GROWING UP, MOVING ON: ASPECTS OF PERSONAL AND RESIDENTIAL INDEPENDENCE

by Lynn Newman

The process of achieving independence has been characterized as the acquisition of adaptive behavior skills in both the social and personal domains (Holman and Bruininks, 1985; Grossman, 1983). Chapter 6 addressed issues related to the social aspects of independence. Here, we focus on the achievement of a variety of personal skills and statuses that help round out our understanding of the multidimensional concept of independence.

Human development is a process of "breaking dependencies" (Harnish et al., 1986), of moving from dependence toward increasing independence. Growing toward independence implies that children take on increasing responsibility for a greater number of the facets of their lives. This movement toward independence is particularly important during adolescence, when young people begin to "try on" a variety of adult roles and responsibilities (Berzonsky, 1981; Greenberger and Sorenson, 1974).

Independence has been broadly defined as involving self-generated activity in seven behavioral domains (Harnish et al., 1986):

- Community integration
- Education, training, and employment
- Self-advocacy and maintenance skills
- Living arrangements
- Mobility and transportation
- Leisure and recreation
- Generic community service.

In addition to the selected aspects of social and community integration that were discussed in the preceding chapter, education, training, and employment are the focus of several other chapters in this volume. Here, we examine additional domains of young adult independence, including a variety of maintenance skills, financial management skills, and living arrangements.

These aspects of personal/residential independence are examined for youth with disabilities who were in secondary school or in their early years out of school. Although few would expect youth to have reached full adult financial or residential independence during these early years, the skills they were acquiring and the early experiences they had are both preparation for, and harbingers of, the possibility of independence in later years.

Figure 7-1 expands the conceptual framework of transition experiences described in Chapter 1 and focuses our attention on the specific aspects of personal and residential independence we consider here. We ask:

- To what extent did young people with disabilities:
  - Take on household responsibilities?
  - Participate in various financial management activities?
  - Live in various residential arrangements?

Figure 7-1 illustrates that some of these aspects of independence are discussed both for youth still in secondary school (Box D) and for youth who had left secondary school (Box E).

The figure further suggests the variety of factors that we examine in relation to aspects of independence. We ask:

- How were the levels of independence demonstrated by youth related to their individual, household, and community characteristics (Box A), and selected aspects of their secondary school experiences (Boxes B, C, and D)?

Finally, we look to the future and focus additional attention on the residential independence of out-of-school youth, addressing the following questions:

- What were parents' expectations for the future residential independence of youth still living at home?
- How were residential arrangements different for youth who had been out of school for a longer period of time?
- To what extent were parents' expectations for their children's future residential independence borne out in the subsequent 2 years?

This chapter begins by describing the household responsibilities of youth who were still living at home with their parents. It then continues with a presentation of the financial management activities of out-of-school youth with disabilities. We then discuss youths' residential arrangements. A look at some of the factors related to living independently during the 2 years after secondary school includes a presentation of a multivariate analysis of the relationships of those factors to residential independence. Finally, we look to the future, with a focus on parents' expectations for their children's future residential independence and a description of the extent to which those expectations were borne out in the subsequent 2 years for the subset of youth in the NLTS exiter substudy.

Household Responsibilities

There is a continuum of skills needed for independent living. One of the first steps along this continuum is the acquisition of basic self-care skills (described in Chapter 2). As youth mature, their sphere of responsibility generally expands from caring for these basic individual needs to include caring for their belongings and the environment in which they live. Acquiring these "community survival skills," such as the capacity for meal preparation, housekeeping, and

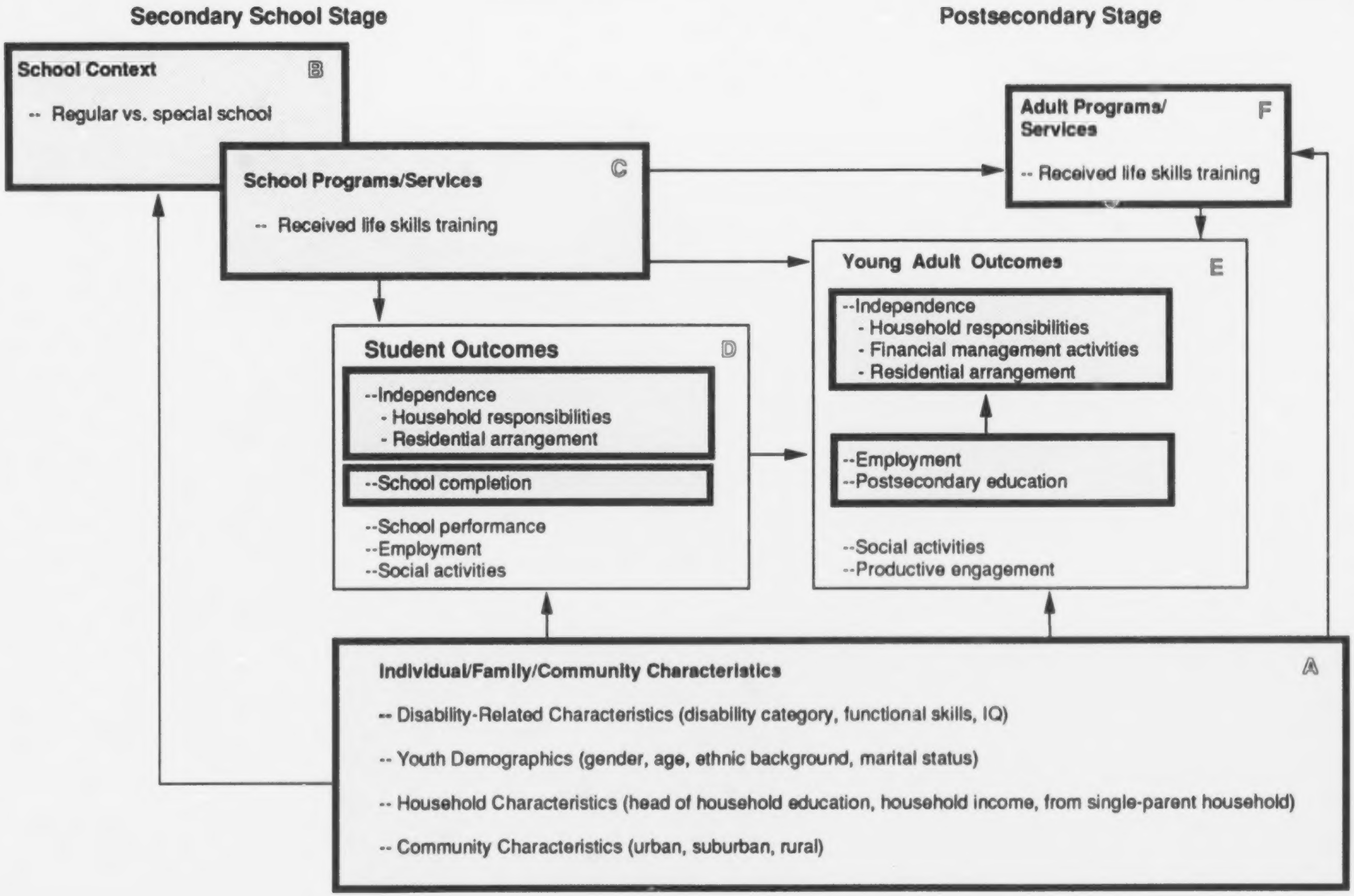
Secondary School Stage
Postsecondary Stage
School Context B
-- Regular vs. special school
School Programs/Services C
-- Received life skills training
Adult Programs/Services F
-- Received life skills training
Young Adult Outcomes E
--Independence
- Household responsibilities
- Financial management activities
- Residential arrangement
--Employment
--Postsecondary education
--Social activities
--Productive engagement
Student Outcomes D
--Independence
- Household responsibilities
- Residential arrangement
--School completion
--School performance
--Employment
--Social activities
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, marital status)
-- Household Characteristics (head of household education, household income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 7-1 HYPOTHESIZED RELATIONSHIPS OF YOUTH, HOUSEHOLD, COMMUNITY, AND SCHOOL FACTORS TO ASPECTS OF PERSONAL AND RESIDENTIAL INDEPENDENCE

clothing and personal care, is critical to independent living (Martin et al., 1982). The following section examines how frequently youth who were still living with parents[*] participated in these kinds of household responsibilities.

Household responsibilities can include performance of a variety of tasks that range widely in complexity. To capture some of this variation, the NLTS asked parents of youth still living at home to report the frequency with which youth carried out four household activities:

- Fixing their own breakfast or lunch
- Straightening up their room or living area
- Buying things at a store
- Doing laundry.

These housekeeping tasks vary in the extent to which they mirror self-care tasks that usually do not require leaving the house vs. involving greater independence of movement and interaction with nonhousehold members. For example, fixing one's own breakfast or lunch and cleaning one's own living area are modest expansions of individual self-care skills. In contrast, grocery shopping may involve purchasing items needed by others. In addition, shopping and doing the laundry often call for more complex skills involved in leaving the home, interacting with others outside of the household, and using money.

To describe the household responsibilities of their adolescent and young adult children with disabilities, parents reported whether youth performed each activity always, usually, sometimes, or never. Taking on these household responsibilities while living at home may be an effective way for youth to prepare to perform such chores for themselves as they mature, and possibly leave their parents' home. Readers should note, however, that as measures of frequency, these items do not measure ability to perform the chores. Performing a household chore is dependent both on youth having the skills necessary to carry out a chore and on parents having the expectation that youth should do it. For example, youth who did not make breakfast or do the laundry may have been capable of performing these tasks, but may have had parents or other family members who preferred to do them.

Table 7-1 describes the frequency with which youth who lived with their parents were reported by parents to carry out each of the household responsibilities we investigated. Generally, youth with disabilities were quite involved with household responsibilities. The percentages of youth reported as never performing a given chore ranged from 7% to 36%, with a large majority of youth reported as performing each chore at least "sometimes."

Table 7-1 also indicates that youth with disabilities were more likely to be responsible for housekeeping tasks that were closer to self-care tasks and that usually did not require leaving the house. For example, youth were much more likely always to straighten their own living area (42%) or to fix their own breakfast or lunch (35%) than always to do the laundry (21%, p<.001) or to buy a few items from a store (24%, p<.001). When looking at the percentage of youth reported never to perform their own household chores, the discrepancy is even larger, with more than 36% of youth with disabilities never doing the laundry, compared with 7% never fixing their own breakfast or lunch (p<.001).

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[*] These items were asked only of parents of youth who were living at home. Parents were not considered particularly good respondents regarding the household responsibilities of youth living in other locations.

Youth with orthopedic or multiple impairments (including those classified as deaf/blind) were less likely to be actively responsible for meal preparation and cleaning activities than were youth in other categories (e.g., 29%, 46%, and 56% never fixed their own breakfast or lunch). When the tasks increased in complexity, they were joined by youth with mental retardation as also not likely to perform the chores frequently.

A General Measure of Household Responsibilities

Although the frequency with which youth performed individual tasks is suggestive of their overall level of household responsibilities, we sought to construct a broader measure of responsibility. A scale was created to capture the overall frequency of performing household chores by assigning increasing values to the frequency of performing each household activity, with 1 assigned to "never" and 4 assigned to "always." Summing the scores for the four activities produced a scale ranging from 4 (never does any of the four activities) to 16 (always does all four activities).

As indicated in Table 7-2, about a quarter of youth never or rarely participated in any of the four household responsibilities. This is fairly consistent for youth in most disability categories, except for youth with orthopedic or multiple handicaps (including deaf/blind); half or more of these youth (50% and 69%, respectively) rarely participated in household chores (p<.001). Only about 10% of youth almost always performed all four chores, with little variation between disability categories, except for the even lower rate of 2% for youth who were multiply handicapped or deaf/blind (p<.001).

Table 7-1

HOUSEHOLD RESPONSIBILITIES OF YOUTH WITH DISABILITIES

		Primary Disability Category:										
Home-Care Responsibilities	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage fixing own breakfast or lunch:												
Always	35.0	36.9	35.1	38.7	32.0	22.5	35.6	35.7	21.8	31.9	13.3	11.4
	(1.5)	(2.4)	(3.0)	(3.6)	(2.2)	(3.1)	(3.5)	(3.2)	(2.9)	(3.6)	(3.1)	(5.6)
Usually	20.8	22.7	23.6	21.7	15.4	22.4	23.0	25.8	15.9	22.0	8.8	8.1
	(1.3)	(2.1)	(2.7)	(3.0)	(1.7)	(3.1)	(3.1)	(2.9)	(2.6)	(3.2)	(2.5)	(4.8)
Sometimes	36.9	37.1	35.0	33.9	38.0	40.6	36.7	35.0	33.6	35.5	31.8	25.0
	(1.5)	(2.4)	(3.0)	(3.5)	(2.3)	(3.6)	(3.5)	(3.2)	(3.3)	(3.7)	(4.2)	(7.6)
Never	7.4	3.3	6.3	5.6	14.5	14.4	4.7	3.4	28.7	10.6	46.0	55.5
	(.8)	(.9)	(1.5)	(1.7)	(1.7)	(2.6)	(1.5)	(1.2)	(3.2)	(2.4)	(4.5)	(8.8)
Percentage straightening up own living area:												
Always	41.8	42.4	33.5	47.5	42.9	51.7	53.4	59.8	31.7	42.2	30.9	30.4
	(1.6)	(2.5)	(3.0)	(3.6)	(2.4)	(3.7)	(3.6)	(3.3)	(3.3)	(3.8)	(4.2)	(8.1)
Usually	15.4	16.6	13.9	14.9	13.6	14.2	12.4	16.3	14.3	16.1	8.2	6.6
	(1.1)	(1.9)	(2.2)	(2.6)	(1.7)	(2.6)	(2.4)	(2.5)	(2.5)	(2.9)	(2.5)	(4.4)
Sometimes	33.9	34.4	40.3	31.0	31.6	28.4	30.6	21.9	34.8	32.6	24.2	34.0
	(1.5)	(2.4)	(3.1)	(3.4)	(2.2)	(3.3)	(3.4)	(2.8)	(3.3)	(3.6)	(3.8)	(8.4)
Never	8.9	6.5	12.3	6.6	11.9	5.7	3.5	1.9	19.2	9.1	36.8	28.9
	(.9)	(1.2)	(2.1)	(1.8)	(1.6)	(1.7)	(1.3)	(.9)	(2.8)	(2.2)	(4.3)	(8.0)
Percentage buying items from a store on his/her own:												
Always	24.0	26.8	23.6	24.5	19.2	14.8	24.1	25.5	15.9	21.9	4.5	4.8
	(1.4)	(2.2)	(2.7)	(3.1)	(1.9)	(2.6)	(3.1)	(2.9)	(2.6)	(3.2)	(1.9)	(3.8)
Usually	17.0	18.9	15.3	17.1	13.7	15.9	18.5	24.1	10.9	18.2	4.8	5.6
	(1.2)	(2.0)	(2.3)	(2.7)	(1.7)	(2.7)	(2.8)	(2.9)	(2.2)	(3.0)	(1.9)	(4.1)
Sometimes	44.6.	46.4	48.3	49.3	38.6	48.2	51.1	41.0	41.6	40.3	33.9	18.5
	(1.6)	(2.5)	(3.2)	(3.6)	(2.4)	(3.7)	(3.6)	(3.3)	(3.5)	(3.8)	(4.3)	(6.9)
Never	14.4	7.9	12.9	9.1	28.4	21.1	6.3	9.4	31.6	19.6	56.7	71.0
	(1.1)	(1.4)	(2.1)	(2.1)	(2.2)	(3.0)	(1.8)	(2.0)	(3.3)	(3.1)	(4.5)	(8.0)
Percentage doing laundry:												
Always	20.6	23.7	18.8	25.2	14.6	17.8	17.3	24.3	12.3	19.2	4.8	8.6
	(1.3)	(2.1)	(2.5)	(3.2)	(1.7)	(2.8)	(2.7)	(2.9)	(2.3)	(3.1)	(1.9)	(4.9)
Usually	8.9	9.8	8.6	7.3	6.9	13.5	8.3	16.7	9.1	9.0	2.8	3.1
	(.9)	(1.5)	(1.8)	(1.9)	(1.2)	(2.5)	(2.0)	(2.5)	(2.0)	(2.2)	(1.5)	(3.0)
Sometimes	34.8	36.2	38.5	39.0	30.5	34.0	40.3	38.1	24.7	30.4	17.4	33.5
	(1.5)	(2.4)	(3.1)	(3.6)	(2.2)	(3.5)	(3.6)	(3.3)	(3.0)	(3.6)	(3.4)	(8.3)
Never	35.7	30.3	34.1	28.5	48.0	34.6	34.1	20.9	53.9	41.3	75.0	54.8
	(1.5)	(2.3)	(3.0)	(3.3)	(2.4)	(3.5)	(3.4)	(2.7)	(3.5)	(3.8)	(3.9)	(8.8)
N	5,863	813	496	409	781	623	608	643	594	368	464	60

Note: Standard errors are in parentheses.
Items apply only to youth still living with the parent/guardian.

Source: Parent interviews.

Table 7-2

HOME-CARE RESPONSIBILITIES SCALE SCORES

	Percentage with Scale Score:				
Disability Category	Low (4 to 8)	Medium (9 to 14)	High (15 to 16)	Mean Score	N
All conditions	28.2	61.7	10.1	10.4	5,836
	(1.4)	(1.5)	(1.0)	(.1)	
Learning disabled	23.6	64.4	12.0	10.8	806
	(2.2)	(2.4)	(1.7)	(.1)	
Emotionally disturbed	28.0	64.9	7.1	10.2	496
	(2.9)	(3.0)	(1.6)	(.2)	
Speech impaired	20.6	66.9	12.4	10.8	409
	(3.0)	(3.4)	(2.4)	(.2)	
Mentally retarded	37.8	55.1	7.1	9.6	779
	(2.3)	(2.4)	(1.2)	(.2)	
Visually impaired	32.2	61.2	6.6	10.7	606
	(3.4)	(3.6)	(1.8)	(.2)	
Hard of hearing	19.9	73.7	6.4	10.7	606
	(2.9)	(3.2)	(1.8)	(.2)	
Deaf	13.0	73.6	13.5	11.4	638
	(2.3)	(3.0)	(2.3)	(.2)	
Orthopedically impaired	50.0	42.3	7.7	8.8	593
	(3.5)	(3.5)	(1.9)	(.2)	
Other health impaired	32.2	59.2	8.6	10.1	365
	(3.7)	(3.9)	(2.2)	(.2)	
Multiply handicapped	69.3	28.8	1.9	7.2	463
	(4.2)	(4.1)	(1.2)	(.3)	
Deaf/blind	69.1	29.0	1.9	7.2	60
	(8.2)	(8.2)	(2.4)	(.5)	

Notes: Standard errors are in parentheses.

The home-care responsibility scale is formed by summing responses to the items related to shopping, cleaning, fixing meals, and doing laundry, which were assigned a value ranging from 1 (youth were reported to do it "never") to 4 (youth were reported to do it "always"). Summing the items produces a scale with values from 4 to 16. Items apply only to youth still living with a parent/guardian.

Source: Parent interviews.

Characteristics of Youth Related to Their Level of Household Responsibilities

We were interested in determining whether other background characteristics, beyond the youth's disability, also related to the frequency of taking on household responsibilities. Of particular interest were variations that might exist between males and females, between youth of different ages or transition stages, and between youth of different cultural or social backgrounds, as measured by ethnicity and household income.

Individual Characteristics

- *Gender.* In our society, women traditionally have been primarily responsible for caring for the home and performing household chores. Even with the advent of the women's liberation movement and with more women working outside the home, women are still more likely to be responsible for the bulk of household chores (R. H. Bruskin Associates, 1989). This pattern holds even among children; nationally, daughters are more frequently expected to help with household chores than are sons.

  As seen in Table 7-3, this pattern of females being more actively involved in household responsibilities holds true for youth with disabilities as well. More than 15% of girls almost always performed all four chores, compared with only 8% of boys ($p<.001$). When looking at the level of household responsibilities for each disability category, we find a consistent pattern of females being more frequently responsible for household chores. In all categories except multiply handicapped, the mean household responsibility scale score was significantly higher for young women than for men ($p<.01$ or .001). Because this scale measures frequency, not ability, it is probable that parents of youth with disabilities were more likely to expect daughters to be responsible for household chores, even when sons may have been as capable of performing them.

- *Age and school status.* As children grow older, they typically take on more responsibility for their care and for the care of their surroundings. This pattern is confirmed for youth with disabilities, as seen in Table 7-4. Older youth were more involved in household care, with more youth who were 19 or older (14%) than youth who were 15 or 16 years old (8%) almost always being responsible for all four chores ($p<.01$). This may be due to an increase in the skills needed to do the chores; for example, more 19-year-olds were able to drive and, therefore, could more readily go to a store on their own. Alternatively, parents may have been less likely to do these chores for older youth than for younger adolescents, expecting that older youth should take a more responsible role in the household. Similarly, youth who had been out of school between 1 and 2 years were significantly more likely than their secondary school peers to have performed all four chores often (15% vs. 9%; $p<.05$).

- *Ethnicity.* Black youth with disabilities were significantly more likely than youth who were white (17% vs. 8%; $p<.001$) or Hispanic (6%; $p<.01$) to perform all four chores often. This may be due to differences in parenting style in families with different ethnic backgrounds, rather than to differences in skills or abilities between youth.

Household Characteristics

- Socioeconomic characteristics of the family, such as head of household's education, and household income were not significantly related to how frequently youth took on household responsibilities. However, we find that youth living in single-parent households were more likely to be responsible for household chores (mean score of 10.7), than those from two-parent households (10.2; $p<.05$). Perhaps the involvement of youth in household chores in single-parent households was greater to offset the responsibilities that might have been carried by a second parent. This relationship also may illuminate the influence of ethnicity described above; Chapter 2 reported that black youth were more likely than others to live in single-parent households, which may help explain their generally higher level of household responsibilities.

Table 7-3

VARIATIONS IN HOME-CARE RESPONSIBILITIES BY GENDER

	Youth with Scale Score:								
	Low (4-8)		Medium (9-14)		High (15-16)		Mean		
	%	S.E.	%	S.E.	%	S.E.	Score	S.E.	N
All conditions									
Male	31.7	1.8	60.6	1.9	7.7	1.0	10.1	.1	3,558
Female	20.6	2.2	64.0	2.6	15.4	2.0	11.1	.2	2,278
Learning disabled									
Male	27.7	2.6	63.2	2.8	9.1	1.7	10.4	.2	609
Female	11.7	3.3	68.0	4.8	20.3	4.1	11.8	.3	197
Emotionally disturbed									
Male	31.5	3.4	62.5	3.5	6.0	1.7	9.9	.2	385
Female	16.5	5.0	72.6	6.0	10.9	4.2	11.1	.3	111
Speech impaired									
Male	27.2	4.2	65.0	4.5	7.8	2.5	10.3	.3	247
Female	11.4	3.7	69.7	5.4	19.0	4.6	11.6	.3	162
Mentally retarded									
Male	41.0	3.2	53.9	3.2	5.1	1.4	9.3	.2	443
Female	33.4	3.5	56.8	3.6	9.8	2.2	10.1	.2	336
Visually impaired									
Male	41.6	4.5	53.8	4.5	4.6	1.9	9.5	.3	363
Female	20.3	4.9	70.7	5.5	9.0	3.5	10.7	.3	258
Hard of hearing									
Male	27.5	4.4	67.1	4.6	5.4	2.2	10.1	.2	318
Female	11.2	3.4	81.3	4.2	7.5	2.9	11.4	.3	288
Deaf									
Male	18.5	3.6	72.6	4.1	8.9	2.6	10.8	.2	341
Female	6.6	2.4	74.6	4.3	18.7	3.9	12.1	.2	297
Orthopedically impaired									
Male	59.2	4.7	36.9	4.6	4.0	1.9	8.1	.3	317
Female	39.7	5.0	48.4	5.2	11.9	3.3	9.6	.4	276
Other health impaired									
Male	37.7	5.1	59.9	5.2	2.4	1.6	9.4	.3	210
Female	25.4	5.1	58.2	5.8	16.4	4.3	11.0	.4	155
Multiply handicapped									
Male	68.7	5.4	30.0	5.3	1.3	1.3	7.3	.3	292
Female	70.4	6.3	26.5	6.1	3.2	2.4	6.9	.5	171

Notes: The home-care responsibility scale is formed by summing responses to the items related to shopping, cleaning, fixing meals, and doing laundry, which were assigned a value ranging from 1 (youth were reported to do it "never") to 4 (youth were reported to do it "always"). Summing the items produces a scale with values from 4 to 16. Items apply only to youth still living with a parent/guardian. "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases of each gender.

Source: Parent interviews.

Table 7-4

VARIATIONS IN HOME-CARE RESPONSIBILITIES BY INDIVIDUAL, HOUSEHOLD, AND COMMUNITY CHARACTERISTICS

	Youth with Scale Score:								
	Low (4-8)		Medium (9-14)		High (15-16)		Mean		
	%	S.E.	%	S.E.	%	S.E.	Score	S.E.	N
Individual characteristics									
Age									
15 or 16	27.6	2.6	64.1	2.8	8.3	1.6	10.2	.2	1,714
17 or 18	28.5	2.3	62.2	2.5	9.4	1.5	10.4	.2	2,001
19 or older	28.7	2.3	57.6	2.5	13.6	1.7	10.5	.2	2,121
School status									
In school	28.5	1.8	62.8	1.9	8.7	1.1	10.2	.1	3,905
Out up to 1 year	26.4	3.1	61.0	3.5	12.6	2.3	10.8	.2	1,037
Out 1 to 2 years	28.7	3.5	55.8	3.8	15.4	2.8	10.7	.2	894
Ethnicity									
Black	22.7	2.8	60.0	3.2	17.3	2.5	11.1	.2	1,393
White	30.3	1.8	62.0	1.9	7.7	1.0	10.1	.1	3,619
Hispanic	29.4	5.3	64.4	5.6	6.2	2.8	10.4	.4	637
Other	25.8	8.5	59.7	10.0	14.5	6.8	10.8	.5	179
Household characteristics									
Youth from:									
Single-parent household	25.5	2.4	62.0	2.7	12.5	1.8	10.7	.2	1,960
Two-parent household	29.7	1.8	61.4	1.9	8.8	1.1	10.2	.1	3,853
Head of household's education									
Less than high school	30.2	2.4	60.2	2.5	9.7	1.5	10.3	.2	1,966
High school graduate	27.6	2.4	62.3	2.6	10.0	1.6	10.3	.2	1,957
College	25.6	2.8	63.9	3.0	10.6	1.9	10.5	.2	1,846
Household income									
Less than $12,000	30.7	2.9	56.9	3.2	12.4	2.1	10.4	.2	1,339
$12,000 to $24,999	28.5	2.7	63.0	2.9	8.4	1.7	10.3	.2	1,560
$25,000 or more	24.2	2.2	66.9	2.4	8.9	1.4	10.4	.1	2,340
Community characteristics									
Youth had attended school in:									
Urban area	24.6	2.4	63.0	2.7	12.4	1.9	10.7	.2	2,519
Suburban area	28.5	2.4	61.5	2.6	10.0	1.6	10.3	.2	2,052
Rural area	31.8	2.6	60.5	2.7	7.7	1.5	10.1	.2	1,265

Source: Parent interviews.

Community Characteristics

- *Community location.* Youth attending schools in urban areas had a significantly higher mean scale score (10.7) than those from rural areas (10.1; p<.05).

Services Received

- *Receipt of life skills training.* Performing a household chore implies that youth had the skills necessary to complete the housekeeping task. Although youth may have learned many home-care skills from their families, some youth were taught such skills in home economics or life skills classes at school. Did such training contribute to a greater level of household responsibility? We find that the mean level of household responsibility was higher for youth who had never received training in life skills than for youth who had (10.4 vs. 7.4; $p<.001$). However, it is difficult to ascertain the impact of receiving training in home-care skills because youth who had difficulty performing these skills (and, therefore, may have performed them less often) were more likely to have received such training. In addition, girls were more likely to have attended home economics courses, and also were more likely to participate in household responsibilities, further confounding the relationships between life skills training and household responsibilities.

When gender and functional ability were controlled, the level of home-care responsibilities was not systematically or significantly related to having received life skills training. For example, among girls with medium functional mental skills, 58% of those who had life skills training had high levels of household responsibilities, compared with 75% of girls who had not had training. The difference was in the reverse direction, however, among girls with high functional mental skills, with 32% of girls who had life skills training being actively involved in household chores, compared with 19% of those who had not had training. Because the home-care independence scale is a measure of frequency and not ability, it is likely that many other factors, such as parent expectations, were greater influences on the extent of youths' participation in household chores than having received instruction in school in the skills necessary to do them.

Financial Responsibilities of Out-of-School Youth

A further aspect of personal independence investigated in the NLTS involves the financial management of personal expenses. Becoming responsible for money is another important step on the continuum of skills necessary for living in adult society. "He that wants money, means and content is without three good friends" (Shakespeare, 1598). Learning how to manage money facilitates youths' independence. Learning to make decisions regarding even a small amount of money is the precursor to the greater financial management responsibilities that accompany adulthood.

The NLTS investigated the extent to which out-of-school youth* were involved in financial management activities by asking parents whether youth had three kinds of financial responsibilities: a checking account, a savings account, or credit cards in their own name. Although adults can live independently without these financial management tools, having them can be indicators of the extent to which youth were broadening their sphere of responsibility and independence.

Almost half of youth (49%) who had been out of secondary school up to 2 years did not participate in any of the financial management activities we investigated (Table 7-5). Having a savings account was the most frequent activity, yet only 41% of youth who were no longer in secondary school had savings accounts. Fewer than 7% had checking accounts or credit cards in their own names, two common forms of adult financial transactions. These findings are similar to results from a study of special education graduates in Colorado, which reported that 7% of youth with disabilities had a checking account (Mithaug and Horiuchi, 1983). There generally were only small differences in patterns of financial responsibility between youth in different disability categories. The only significant differences involved whether youth had credit cards; percentages ranged from no youth with multiple handicaps and 2% of those classified as mentally retarded to 14% of youth classified as hard of hearing or speech impaired (p<.05). Yet even in disability categories at the higher end of the range, fewer than 15% of youth had their own credit cards.

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* Youth who were out of school at the time of the summer 1987 interview, but expected by parents to return to secondary school in the coming fall, are excluded from analysis of financial management tools used by out-of-school youth.

Table 7-5

FINANCIAL MANAGEMENT TOOLS USED BY OUT-OF-SCHOOL YOUTH WITH DISABILITIES

	Out-of-School† Youth Who Had:										
	Savings Account		Checking Account		Other Investments		Credit Card in Own Name		None of These		
Disability Category	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	N
All conditions	41.4	2.7	6.7	1.4	.4	0.3	6.4	1.3	48.9	2.7	1,880
Learning disabled	44.4	4.0	8.1	2.2	.4	0.5	8.1	2.2	44.2	4.0	316
Emotionally disturbed	33.4	4.9	5.1	2.3	.8	0.9	5.0	2.3	58.1	5.1	180
Speech impaired	49.2	6..8	7.6	3.6	1.9	1.9	14.4	4.7	38.0	6.5	119
Mentally retarded	36.6	4.1	3.6	1.6	.0	.0	2.4	1.3	57.7	4.1	250
Visually impaired	42.6	6.5	12.8	4.4	.3	0.7	4.1	2.6	44.2	6.5	196
Hard of hearing	52.7	6.8	5.3	3.1	.8	1.2	14.5	4.8	39.6	6.6	175
Deaf	44.5	5.1	11.7	3.3	.3	0.6	2.5	1.6	42.0	5.0	255
Orthopedically impaired	42.0	6.4	6.5	3.2	.2	0.5	10.6	4.0	50.9	6.5	173
Other health impaired	50.3	8.1	13.1	5.5	.0	0.0	8.9	4.6	36.3	7.8	85
Multiply handicapped	30.6	8.9	4.2	3.9	1.9	2.6	.0	.0	63.0	9.3	97

† Does not include youth out of school in summer 1987 who were expected to return to secondary school in the fall. "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

One would expect higher-functioning youth to participate more readily in these fairly sophisticated financial activities. As expected, youth's functional abilities were related to all three financial activities; higher-functioning youth were significantly more likely to have had savings or checking accounts or credit cards. For example, 9% of youth with the highest functional ability scale scores had a credit card, compared with fewer than 1% of those having low scores (p<.001; Table 7-6).

Table 7-6

VARIATIONS IN USE OF FINANCIAL MANAGEMENT TOOLS BY INDIVIDUAL, HOUSEHOLD, AND COMMUNITY CHARACTERISTICS

	Out-of-School Youth[†] Who Had:								
	Savings Account		Checking Account		Credit Card		None of These		
Factors	%	S.E.	%	S.E.	%	S.E.	%	S.E.	N
Disability characteristics									
Functional ability score:									
Low (4 to 8)	21.8	6.5	5.4	3.6	.1	.5	72.3	7.1	186
Medium (9 to 14)	41.7	4.6	6.0	2.2	3.0	1.6	51.4	4.7	639
High (15 to 16)	43.7	3.5	7.5	1.8	8.9	2.0	46.5	3.5	986
Individual characteristics									
Gender									
Male	44.0	3.3	5.7	1.6	6.1	1.6	47.8	3.3	1,147
Female	35.9	4.5	8.9	2.7	7.2	2.4	51.4	4.7	733
Age in 1987									
15 or 16	—	—	—	—	—	—	—	—	13
17 or 18	37.8	6.8	7.3	3.7	1.5	1.7	53.2	6.9	262
19 or older	42.7	2.8	6.5	1.4	7.6	1.5	47.5	2.8	1,605
Ethnicity									
Black	23.2	5.1	1.6	1.5	2.7	1.9	70.3	5.4	413
White	48.0	3.3	7.7	1.7	7.9	1.8	41.7	3.2	1,263
Hispanic	27.7	11.1	12.1	8.1	3.3	4.4	58.3	12.1	139
School status									
Out 1 year or less	47.6	3.8	4.7	1.6	3.5	1.4	46.4	3.7	852
Out 1 to 2 years	36.4	3.4	8.4	2.0	8.9	2.0	51.0	3.5	1,028
Household characteristics									
Household income									
Less than $12,000	18.1	4.6	6.2	2.9	3.4	2.2	71.6	5.4	373
$12,000 to $24,999	39.0	5.1	7.3	2.7	5.0	2.3	50.0	5.1	522
$25,000 and over	62.4	4.2	7.4	2.3	10.8	2.7	28.1	3.8	814
Head of household's education									
No high school diploma	23.2	4.0	6.0	2.3	4.8	2.0	67.8	4.4	565
High school diploma	48.2	4.7	7.8	2.5	6.8	2.4	39.9	4.6	651
Beyond high school	59.4	5.4	6.2	2.6	8.9	3.1	33.2	5.1	617
Community characteristics									
Youth attended school in:									
Urban area	40.4	5.8	2.7	1.9	4.5	2.4	54.7	5.8	516
Suburban area	50.2	5.0	5.5	2.3	6.6	2.5	42.3	4.9	520
Rural area	40.2	5.0	9.2	2.9	9.4	3.0	46.2	5.0	290
Other youth outcomes									
Youth's school completion status									
Graduated	46.9	3.1	6.4	1.5	7.3	1.6	45.2	3.1	1,363
Aged out	39.4	5.1	6.3	2.5	8.3	2.8	51.5	5.2	339
Dropped out	16.2	5.7	7.7	4.1	1.4	1.8	73.3	6.8	165
Had a paid job									
Yes	51.1	3.6	8.2	2.0	8.8	2.0	39.2	3.5	873
No	28.5	3.6	4.4	1.6	3.3	1.4	65.0	3.8	993

[†] Does not include youth out of school in summer 1987 who were expected to return to secondary school in the fall. "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

There were few differences in patterns of financial responsibility related to individual and household characteristics. Gender and community residence were not significantly related to using financial tools. Youth who were 19 or older were more likely to have credit cards than those who were 17 or 18 (p<.01), perhaps because many companies do not extend credit to youth under 18 years of age.

As might be expected, having a savings account was related to household income. Among youth from households with an income of $25,000 or more, 62% had savings accounts, compared with 39% of those from households with incomes between $12,000 and $25,000 (p<.001), and 18% of those from a household with incomes of less than $12,000 (p<.01). Youth who were white were more likely to have a savings account (48%) than youth who were black (23%; p<.001) or Hispanic (28%; p<.001). Similarly, those who came from households whose heads had attended college were more likely to have savings accounts than were youth from households whose heads had not completed high school (59% vs. 23%; p<.001), perhaps reflecting the high correlation between head of household's education and household income.

Unlike having a savings account, having a checking account was not related to household income, ethnicity, or head of household's education. Having a credit card was related to household income; e.g., youth from households with incomes of $25,000 or more were significantly more likely to have credit cards than were those from households with incomes of less than $12,000 (11% vs. 3%; p<.05); it was not related to ethnicity or head of household's education.

Clearly, to have a checking or savings account or a credit card requires having money. One likely source of money for youth is their families. The fact that family income was more strongly related to having savings accounts than to using other financial management tools suggests that perhaps families were more likely to provide money for savings accounts, but were less often the source of money for checking accounts or credit card payments. In addition, it is possible that higher-income families had a tradition of savings and placed a stronger value on this activity than did less prosperous families. Having a savings account can be a fairly passive activity, with parents or guardians opening and maintaining accounts for youth.

Paid jobs held by youth are another likely source of money that might provide the opportunity for using various of financial management tools. Youth who were currently employed were significantly more likely to have savings accounts or credit cards than were unemployed youth. For example, more than half (51%) of all currently employed youth had a savings account, while only about a quarter of youth who were not employed had a savings account (28%; p<.001).

The discussion thus far has focused on financial management activities during the first 2 years after high school. For youth who had left secondary school by 1987 and who were learning disabled, emotionally disturbed, speech impaired, or mildly/moderately mentally retarded, we also have information from the NLTS exiter substudy about their financial activities when they were 2 to 4 years out of high school. How did the financial management responsibilities of these youth change as they aged?

Although the rate of having a savings account remained the same over time, there was a large increase in the rate of having a checking account (Table 7-7), from 3% of youth out of high school up to 1 year to 30% of youth 3 to 4 years out of school (p<.001). The rate of having a credit card increased by a factor of 5 during those years, from 4% to 20% (p<.001). This increase might be due partially to maturation, with the youth growing 2 years older. In addition, with current paid employment so strongly related to these financial activities, the significant increase in paid

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Table 7-7

USE OF FINANCIAL MANAGEMENT TOOLS BY LENGTH OF TIME SINCE HIGH SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

	Years Since Secondary School:							
	< 1		1 - 2		2 - 3		3 - 4	
Financial Activities	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Percentage of youth with a savings account								
All four conditions	51.8	5.1	36.0	4.6	50.8	5.2	42.8	4.9
Learning disabled	55.8	7.5	39.3	6.6	51.0	7.7	54.5	6.9
Emotionally disturbed	50.2	10.0	30.5	10.3	45.6	10.0	23.3	9.6
Speech impaired	48.2	11.5	49.7	14.0	58.3	12.0	—	—
Mentally retarded	43.9	7.8	29.3	7.1	51.4	8.0	22.2	6.6
Percentage of youth with a checking account								
All four conditions	2.9	1.7	10.0	2.9	30.3	4.8	29.9	4.5
Learning disabled	1.3	1.7	14.3	4.7	36.6	7.3	40.3	6.8
Emotionally disturbed	4.0	3.9	7.6	5.9	23.2	8.5	19.6	9.0
Speech impaired	6.3	5.6	8.9	8.0	42.9	11.9	—	—
Mentally retarded	5.7	3.6	.8	1.4	17.4	6.0	9.4	4.6
Percentage of youth with a credit card								
All four conditions	3.6	1.9	11.7	3.1	19.6	4.2	20.2	4.0
Learning disabled	4.9	3.3	14.8	4.9	24.7	6.6	26.5	6.2
Emotionally disturbed	2.0	2.7	7.8	5.9	20.5	8.1	10.0	6.9
Speech impaired	3.7	4.4	26.1	11.8	33.3	11.5	27.4	12.4
Mentally retarded	1.3	1.8	5.1	3.4	6.4	3.9	9.3	4.6
Percentage of youth with none of these								
All four conditions	44.8	5.1	49.7	4.8	39.0	5.1	44.9	4.9
Learning disabled	42.0	7.4	41.9	6.7	36.0	7.4	29.5	6.4
Emotionally disturbed	45.9	9.8	57.8	11.0	50.0	10.0	68.3	10.5
Speech impaired	45.5	11.5	34.7	13.3	29.3	10.9	—	—
Mentally retarded	50.4	7.9	66.2	7.4	43.0	7.9	71.6	7.2
N								
All four conditions	295		327		284		309	
Learning disabled	96		145		94		136	
Emotionally disturbed	55		55		52		53	
Speech impaired	52		32		48		28	
Mentally retarded	79		86		77		84	

Source: 1987 parent interviews and 1989 parent/youth interviews.

employment during those years may have contributed to their financial responsibility (e.g., among those in the exiter substudy, just over half were employed in 1987, compared to almost 70% in 1989.

Residential Arrangements

In some sense, achieving residential independence can be viewed as the culmination of the process of developing independent living skills of the kinds we have discussed thus far. As youth become more involved with such things as home-care responsibilities and financial management activities, they rehearse elements of independence that may support their ability eventually to live independently. In this section, we describe the residential arrangements of young people with disabilities both during secondary school and in the early years afterward.

For the general population of youth, residential arrangements often are in flux during late adolescence and early adulthood. Typically, youth live with parents during elementary and secondary school. On leaving school, they begin to experience other living arrangements. Youth who find jobs may have the financial means to live in an apartment alone or with a roommate. Youth who go on to postsecondary school may live in college dormitories, and those who enter the military experience the group living situations it entails. Because circumstances of employment and schooling can change repeatedly during this developmental stage, youth may alternate among a variety of living arrangements, including returning to the parents' home.

Because living arrangements may change once youth leave secondary school, we present findings in this section separately for secondary school students and for those recently out of secondary school. We describe the residential arrangements of these two groups of youth to learn whether the patterns that are typical of youth in the general population also characterize the living arrangements of youth with disabilities as they mature into early adulthood.

Some differences in patterns would be expected, however, because of the severity or nature of some youths' disabilities. For example, for many years, when a child was born with a serious disability that was obvious at birth, parents often were urged not to have the child live at home because of the difficulties of caring for children with special needs and for the strain it may put on other family relationships. Even with the advent of P.L. 94-142 and the move to educate children in their neighborhood schools, some children have needs that are considered best met at special schools, some of which are residential.

Readers should note that the NLTS may underestimate to an unknown degree the extent to which youth with disabilities were living in residential schools or institutions for those with disabilities. Because the NLTS primarily has a school-district-based sample, it includes youth who were on school district rosters of special education students, even if they were out-placed to residential schools or institutions (with the exception of youth in the deaf and visually impaired categories; they were sampled directly from state-operated residential schools as well as from school districts). Some youth with disabilities may have been placed in residential schools or institutions independently by parents and, therefore were not included on rosters of the school districts that might otherwise have served them and were not included in the NLTS. Further, youth who were included in the NLTS but reported by parents to have been institutionalized in a hospital, mental health facility, correctional facility, or institution for the disabled for more than 1 year were not considered as in school, regardless of age; they are included in the analysis of out-of-school youth.

Residential Arrangements During Secondary School

Table 7-8 indicates that almost 95% of youth with disabilities who were still in secondary school were living at home with a parent or legal guardian. Further, more than 95% of students who were living at home lived in a household with at least one natural parent. These residential experiences of secondary school students with disabilities were similar to the experiences of their nondisabled peers. For example, findings from High School and Beyond (CES, 1986a/b) indicate that more than 90% of 1980 high school sophomores and seniors lived with a parent, a finding confirmed by U.S. Bureau of the Census (1987) reports that 94% of youth aged 15 to 17 lived with a parent.

Even among students with more severe disabilities, the majority were living at home. For example, 86% of students with multiple handicaps and 72% of those who were deaf/blind lived with a parent; however, this rate was significantly lower than the rate of living at home among other students with disabilities ($p<.01$). Youth classified as deaf or emotionally disturbed also were less likely to be living with a parent than their peers ($p<.05$), although the majority were doing so (87% and 89%, respectively).

What was the living arrangement of the minority of students who were not living with a parent or guardian? For students with disabilities as a whole, those not living with parents were still more likely to be living in a family setting—with an aunt, uncle, grandparent, or sibling (2%)—than in a residential school (1%) or an institution for those with disabilities (<1%). A small percentage of students were living at residential schools among those classified as visually impaired (4%), deaf (10%), deaf/blind (17%), or multiply handicapped (4%), although this is only significantly different for the 10% of youth classified as deaf who lived at residential schools ($p<.001$). Youth with multiple handicaps were more likely than students as a whole to live in supervised group homes (6%; $p<.05$).

Residential Arrangements After Secondary School

There is a long-held expectation in our society that as youth leave school and mature, they also will leave their childhood home to form new households. Although the recent national trend is for youth to remain in their parents' homes longer than in earlier years (Wetzel, 1987), an independent living arrangement is achieved by many nondisabled youth in early adulthood. Were out-of-school youth with disabilities experiencing different living situations than their secondary school peers, including independent living?

Table 7-8

CURRENT LIVING ARRANGEMENTS OF SECONDARY SCHOOL STUDENTS WITH DISABILITIES

		Primary Disability Category:										
Living Arrangements	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage of youth living:												
With parent(s)	94.6 (.8)	96.4 (1.1)	88.8 (3.0)	95.5 (1.6)	93.0 (1.4)	93.6 (2.0)	95.7 (1.7)	87.3 (2.6)	93.4 (2.0)	95.4 (1.8)	86.0 (3.1)	71.8 (9.4)
In a residential/boarding school (not a college)	.9 (.4)	.3 (.3)	2.2 (1.1)	.7 (.7)	1.3 (.6)	3.6 (1.5)	.7 (.7)	9.6 (2.3)	.6 (.6)	1.8 (1.1)	3.9 (1.7)	17.3 (7.9)
In a group home	.9 (.4)	.0 (.0)	1.9 (1.0)	1.1 (.8)	2.5 (.9)	.7 (.7)	.0 (.0)	.3 (.4)	1.2 (.9)	1.5 (1.0)	6.1 (2.2)	9.0 (.0)
In a mental health facility/ hospital/institution for the disabled	.3 (.2)	.4 (.4)	.9 (.5)	.0 (.0)	.0 (.0)	.2 (.3)	.0 (.0)	.2 (.3)	.2 (.4)	.0 (.0)	.5 (.6)	1.8 (2.8)
In a correctional facility	.3 (.2)	.2 (.3)	.8 (.7)	.0 (.0)	.5 (.0)	.0 (.0)	.0 (.2)	.0 (.3)	.0 (.0)	.0 (.0)	.2 (.6)	.0 (.0)
Alone	.2 (.1)	.1 (.2)	.9 (.7)	.2 (.4)	.0 (.0)	.2 (.4)	.3 (.5)	.0 (.0)	.3 (.4)	.0 (.0)	.0 (.0)	.0 (.0)
With spouse/roommate	.5 (.3)	.7 (.5)	.4 (.4)	1.1 (.8)	.2 (.2)	.3 (.4)	.2 (.3)	.3 (.4)	.5 (.6)	.5 (.6)	1.2 (1.0)	.0 (.0)
With another family member	2.0 (.5)	1.5 (.7)	3.8 (1.4)	1.4 (.9)	2.6 (.9)	1.4 (1.0)	3.0 (1.4)	2.2 (1.1)	3.7 (1.5)	.8 (.8)	1.5 (1.1)	.0 (.0)
Other	.3 (.2)	.4 (.4)	.2 (.3)	.0 (.0)	.0 (.0)	.0 (.0)	.1 (.2)	.1 (.3)	.0 (.0)	.0 (.0)	.5 (.6)	.0 (.0)
Percentage of youth living independently[†]	.7 (.3)	.7 (.5)	1.3 (.7)	1.3 (.9)	.2 (.2)	.5 (.6)	.6 (.6)	.3 (.4)	.8 (.7)	.5 (.6)	1.2 (1.0)	.0 (.0)
N	4,436	535	346	302	564	505	465	496	438	301	439	45

Note: Standard errors are in parentheses.

[†] Independent living includes living alone, with a spouse or roommate, in military housing, or in a college dormitory.

Source: Parent interviews.

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Living with Family Members

Among out-of-school youth with disabilities, the majority were living with a parent or guardian in the first 2 years after high school. Three- fourths of youth who had been out of school up to 2 years were living with parents. This figure is very similar to the 68% rate of living with a parent reported for special education graduates in Colorado (Mithaug and Horiuchi, 1983) and is lower than the 82% rate reported for mentally retarded youth in Vermont (Hasazi et al., 1985). Fewer than 1 in 10 out-of-school youth (6%) were residing in a home setting with a family member other than a parent.

As indicated in Table 7-9, the rate of living with parents was fairly consistent across disability groups. Only youth with multiple handicaps were significantly less likely to be living with parents when compared with youth as a whole (59% vs. 75%; $p<.05$), while youth with orthopedic impairments were the only group to be significantly more likely still to be living with parents (87% vs. 75%; $p<.01$).

Youth with disabilities were more likely than youth in the general population to be living with a parent after leaving high school. To make this comparison, residential status was calculated for two groups of youth from the general population using the NLSY: youth with demographic characteristics similar to those of youth with disabilities, and the general population of youth as a whole (see Appendix A for more details regarding these comparison groups). When NLTS estimates were recalculated to include only youth aged 15 to 20 (to be comparable to the NLSY), 83% of out-of-school youth with disabilities still were living at home with their parents. In comparison, 64% of out-of-school youth of similar ages in the general population were still living with a parent ($p<.001$).

Living in Supervised Settings

Out-of-school youth infrequently lived in supervised settings, either in group homes, in residential schools, or in institutions or correctional facilities. For example, Table 7-9 indicates that only 1% of out-of-school youth with disabilities lived in a supervised group home, with no significant variation between disability groups.

Although fewer than 1% of out-of-school youth with disabilities were living in a correctional facility at the time of the interview, almost 2% of youth with emotional disabilities out of school less than 1 year were incarcerated, a rate that doubled to almost 4% incarcerated among those who had been out of school between 1 and 2 years. This corroborates the higher arrest rate for youth with emotional disturbances discussed in Chapter 6.

Table 7-9

CURRENT LIVING ARRANGEMENTS OF OUT-OF-SCHOOL YOUTH WITH DISABILITIES

		Primary Disability Category:										
Living Arrangements	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage of youth living:												
With parent(s)	75.4 (1.9)	74.8 (3.1)	74.7 (3.8)	75.4 (4.9)	77.5 (2.9)	72.8 (4.8)	77.7 (4.9)	78.4 (3.7)	87.1 (4.0)	77.5 (5.6)	58.7 (6.7)	68.2 (9.4)
With another family member	6.5 (1.1)	7.5 (1.9)	5.0 (1.9)	6.5 (2.8)	6.1 (1.7)	3.0 (1.8)	2.6 (1.9)	3.0 (1.5)	.8 (1.1)	7.5 (3.5)	2.7 (1.8)	2.0 (2.8)
In a residential/boarding school (not a college)	1.0 (.4)	.8 (.6)	.2 (.4)	.0 (.0)	1.4 (.8)	3.5 (2.0)	.8 (1.0)	1.3 (1.0)	.0 (.0)	.4 (.9)	4.7 (2.9)	8.9 (5.7)
In a group home	1.3 (.5)	.1 (.2)	1.3 (1.0)	2.8 (1.9)	3.4 (1.3)	1.2 (1.2)	2.8 (2.0)	.2 (.4)	1.3 (1.4)	4.0 (2.6)	6.2 (3.3)	8.5 (5.6)
In a mental health facility/ hospital/institution for the disabled	2.5 (.7)	.4 (.5)	4.7 (1.9)	.8 (1.3)	5.1 (1.5)	1.4 (1.3)	.6 (.9)	.6 (.7)	3.5 (2.2)	1.0 (1.3)	22.8 (5.7)	9.9 (6.0)
In a correctional facility	.9 (.4)	.7 (.6)	2.4 (1.3)	1.5 (1.4)	.7 (.6)	.0 (.0)	.6 (.9)	.0 (.0)	.0 (.0)	.0 (.0)	.0 (.0)	.0 (.0)
Other	.6 (.4)	.8 (.6)	.6 (.7)	.6 (.9)	.2 (.3)	.3 (.6)	.0 (.0)	1.1 (.9)	.6 (.9)	.9 (1.3)	2.9 (2.3)	.0 (.0)
Percentage of youth living independently†	11.7 (1.4)	15.0 (2.3)	11.0 (2.8)	12.4 (3.8)	5.6 (1.5)	17.7 (4.1)	14.9 (4.2)	15.3 (3.2)	6.6 (2.9)	8.7 (3.8)	2.0 (1.9)	2.5 (3.2)
N	2,716	446	288	193	383	248	227	319	232	136	201	43

Note: Standard errors are in parentheses.

† Independent living includes living alone, with a spouse or roommate, in military housing, or in a college dormitory.

Source: Parent interviews.

Youth with multiple handicaps were the most likely to be institutionalized, with more than 1 of 5 youth in this category living in an institution (p<.001). Youth classified as mentally retarded (5%; p<.01) or emotionally disturbed (5%, p<.05) also were significantly more likely than youth with disabilities as a whole to be living in an institution.*

As indicated in Table 7-10, among those who were institutionalized, about a third were reported by parents to have lived there less than 6 months, and another 22% had lived in their present institutions from 6 to 12 months. Institutionalization of youth with emotional disabilities tended to be more short term, with 41% of youth living in their present institution for less than 6 months and 68% for less than 1 year. In comparison, 68% of youth with multiple impairments who were institutionalized had lived in their present facility for longer than 3 years.

Table 7-10

LENGTH OF TIME YOUTH WITH DISABILITIES WERE INSTITUTIONALIZED[†]

	Percentage of Institutionalized Youth Who Had Lived in That Institution:				
Disability Category	Less Than 6 Months	6 to 12 Months	13 to 36 Months	More Than 36 Months	N
All conditions[§]	33.5 (6.4)	22.3 (5.7)	20.2 (5.5)	24.0 (5.8)	275
Emotionally disturbed	40.7 (12.5)	27.0 (11.3)	27.2 (11.3)	5.1 (5.6)	32
Mentally retarded	19.5 (7.6)	18.6 (7.5)	28.2 (8.7)	33.7 (9.1)	52
Multiply handicapped	12.1 (6.1)	11.3 (6.0)	8.7 (5.3)	68.2 (8.8)	95

Note: Standard errors are in parentheses.

[†] Institutionalized includes youth living in a mental health facility, hospital, institution for the disabled, or correctional facility.

[§] "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

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* Readers should be reminded that youth who were reported to have been institutionalized more than a year were considered out-of-school youth, regardless of age. This decision may result in the rate of institutionalization for out-of-school youth being somewhat inflated relative to the rate for students considered in school.

Living Independently

To be categorized as living independently, youth had to be reported by parents as living alone, with a spouse or roommate, in a college dormitory, or in military housing. In the first 2 years after high school, only a minority of youth with disabilities achieved an independent living arrangement. Overall, 12% of youth who were no longer in secondary school lived independently (Figure 7-2). Independent living was more common for youth in some disability categories. For example, 15% of youth with learning disabilities lived independently, compared with 6% of youth with mental retardation (p<.001); 18% of youth with visual impairments lived independently, compared with 2% of youth with multiple impairments (p<.001). Out-of-school youth who were classified as learning disabled, visually impaired, deaf, or hard of hearing were the most likely to be reported by parents as living independently, whereas those classified as orthopedically or multiply impaired (including deaf/blind) or as mentally retarded were the least likely.

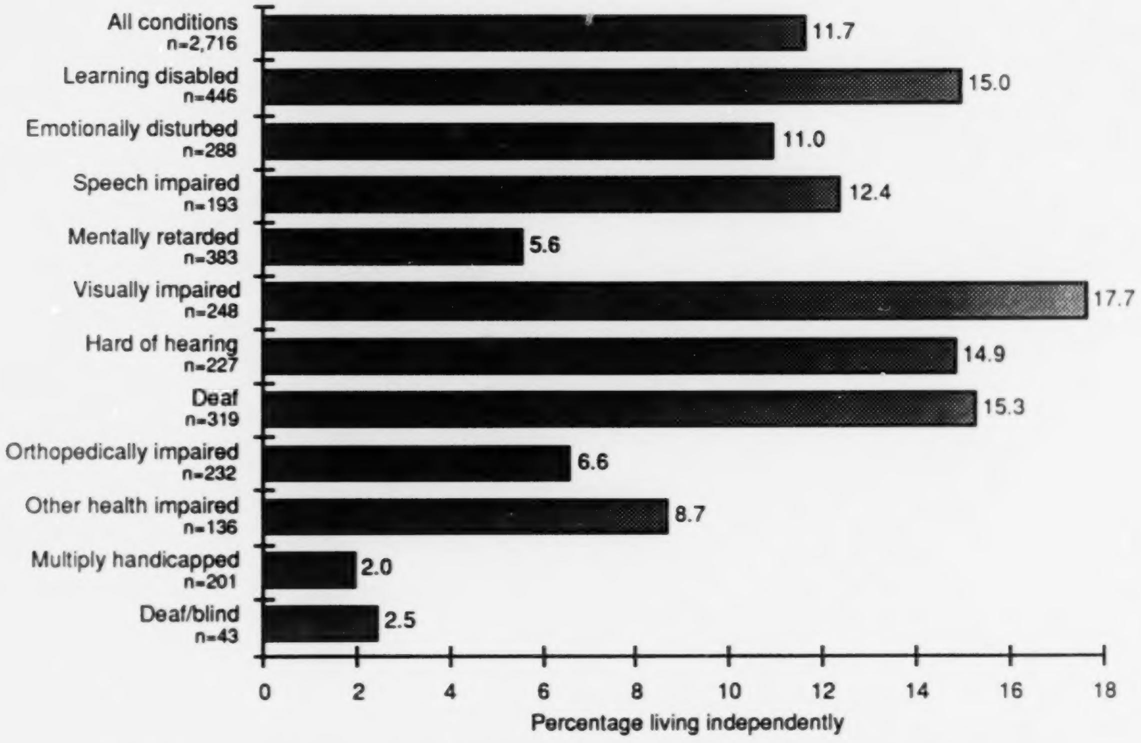

FIGURE 7-2 YOUTH WITH DISABILITIES LIVING INDEPENDENTLY[†] AFTER SECONDARY SCHOOL

[†] Independent living includes living alone, with a spouse or roommate, in a college dormitory, or in military housing.

Source: Parent interviews.

Of youth who lived independently, 73% lived with a spouse or roommate and 21% lived alone (Figure 7-3). Living alone or with a spouse or roommate were the two most common forms of residential arrangements among those living independently, regardless of disability category. Fewer than 1 in 10 youth (6%) lived in a college dormitory or military housing. There were differences between disability categories in these latter two types of independent arrangements. For example, independent youth with visual impairments were more likely to be living in a college dormitory than those with learning disabilities (28% vs. 2%; p<.05). Youth with emotional disabilities who lived independently were the most likely to be living in military housing (11%). Further, gender differences were apparent. Males were somewhat more likely than females to be living alone (28% vs. 9%), and females were more likely to be living with a spouse or roommate (86% vs. 66%); gender differences were not statistically significant because of the small number of youth living independently. These differences are corroborated by the differences in the marriage rate for males and females. As indicated in Chapter 6, almost 13% of parents reported that their daughters were married, compared with 4% of parents of sons (p<.01).

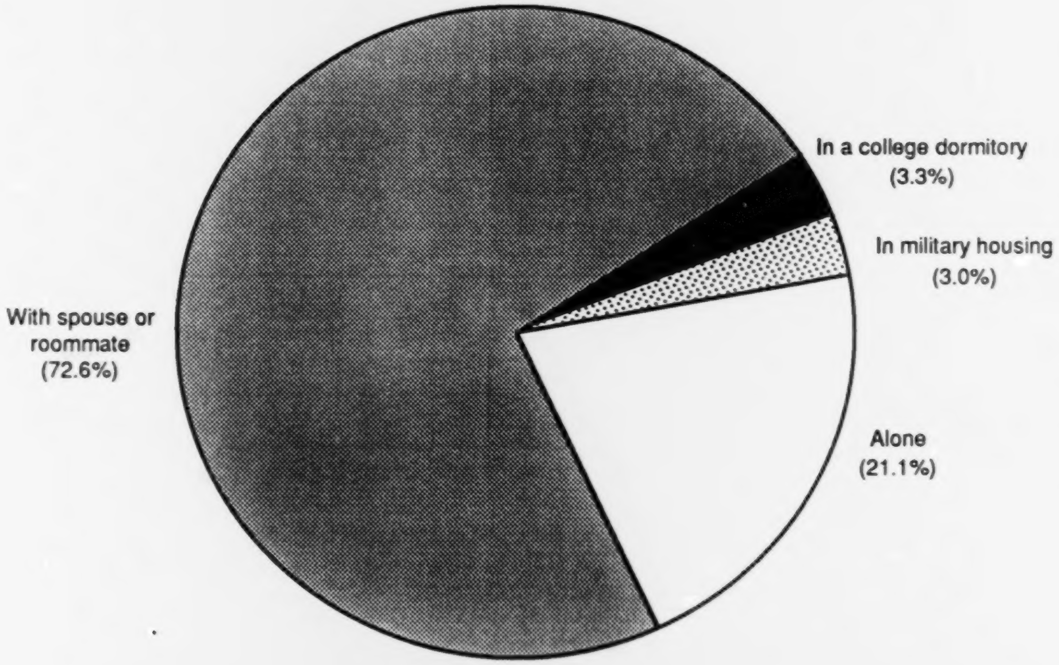

FIGURE 7-3 RESIDENTIAL ARRANGEMENTS OF OUT-OF-SCHOOL YOUTH WHO LIVED INDEPENDENTLY (n=310)

Source: Parent interviews.

Table 7-11 compares the rate of living independently for out-of-school youth with disabilities who were ages 15 to 20 with those of two comparison groups of youth from the general population, described earlier. These comparisons show that youth with disabilities were significantly less likely to be living independently than youth in general. Of youth with disabilities aged 15 to 20 who had been out of secondary school less than 2 years, 13% were living independently, compared with 33% of youth in the general population (p<.001). Even when demographic differences were accounted for, youth with disabilities were less likely to be living on their own: 13%, compared with 29% for youth who were similar in their distribution on gender, head of household's education, and ethnicity (p<.001).

Table 7-11

INDEPENDENT LIVING[†] AMONG YOUTH WITH DISABILITIES AND THE GENERAL POPULATION OF YOUTH

	Youth Who Lived Independently		
Youth Characteristics[§]	%	S.E.	N
Youth with disabilities	13.4	1.7	1,732
Youth in the general population with demographic characteristics similar to youth with disabilities	28.9	.8	7,560
Youth in the general population (total)	33.2	.8	7,560

[†] Independent living includes living alone, with a spouse or roommate, in a college dormitory, or in military housing.

[§] Youth were ages 15 to 20 and out of school up to 2 years

Source: For youth with disabilities: NLTS parent interviews.
For the general population: NLSY youth interviews.

Who Was Living Independently?

What factors were related to a youth with disabilities living independently shortly after high school? As was indicated earlier in Figure 7-1, individual, household, and community characteristics, as well as school factors, are hypothesized to influence whether youth were living independently once they left school. Table 7-12 explores the relationship between living independently and these background characteristics of out-of-school youth.

Table 7-12

VARIATIONS IN EXTENT OF LIVING INDEPENDENTLY BY INDIVIDUAL, HOUSEHOLD, AND COMMUNITY CHARACTERISTICS AMONG OUT-OF-SCHOOL YOUTH

	Youth Who Lived Independently		
Youth Characteristics	%	S.E.	N
Functional ability			
Functional mental skills scale score[†]			
Low (4-8)	2.7	2.1	281
Medium (9-14)	13.6	2.8	850
High (15-16)	12.1	2.0	1,278
Self-care ability scale score[§]			
Low (3-6)	1.2	2.1	112
Medium (7-10)	2.0	1.8	368
High (11-12)	12.4	1.6	2,003
Individual characteristics			
Gender			
Male	11.0	1.7	1,675
Female	13.3	2.6	1,040
Age			
15 or 16	7.2	6.1	85
17 or 18	11.2	3.0	504
19 or 20	13.6	2.1	1,153
21 or more	7.4	1.6	974
Ethnic background			
Black	5.2	2.0	639
White	13.5	1.8	1,723
Hispanic	13.1	6.7	215
Other	6.3	6.6	88
Household/community demographics			
Household income			
Less than $25,000	12.4	2.0	1,283
$25,000 or more	12.3	2.4	975
Lived in:			
Single-parent household	9.8	2.3	834
Two-parent household	13.7	2.0	1,611
Attended school in:			
Urban area	7.4	2.4	760
Suburban area	10.3	2.5	694
Rural area	16.1	3.0	420
Employment/financial independence			
Current employment status			
No employment	8.0	1.7	1,485
Part-time/full-time sheltered	3.4	3.4	149
Part-time competitive	10.2	3.0	458
Full-time competitive	20.9	3.7	486
Had a job in the past year			
Yes	13.2	1.8	1,604
No	8.5	2.3	959
Had a savings account, credit card, checking account			
Yes	12.7	2.3	1,183
No	11.0	2.3	948

Table 7-12 (Concluded)

VARIATIONS IN EXTENT OF LIVING INDEPENDENTLY AMONG OUT-OF-SCHOOL YOUTH BY INDIVIDUAL, HOUSEHOLD, AND COMMUNITY CHARACTERISTICS

	Youth Who Lived Independently		
Youth Characteristics	%	S.E.	N
School outcomes			
School completion status:			
Graduated	11.0	1.8	1,575
Dropped out	16.3	3.3	498
Aged out	6.0	2.1	466
Suspended/expelled	.6	2.3	53

[†] The functional mental skills scale is formed by summing responses of the items related to counting change, telling time, reading signs, and using the phone. For each item, a value was assigned ranging from 1 (youth were reported to do it "not at all well") to 4 (youth were reported to do it "very well"). Summing the items produces a scale with values from 4 to 16.

[§] The self-care skills scale is formed by summing responses of the items related to dressing, feeding, and getting around. For each item, a value was assigned ranging from 1 (youth were reported to do it "not at all well") to 4 (youth were reported to do it "very well"). Summing the items produces a scale with values from 3 to 12.

Source: Parent interviews.

Disability Characteristics—Bivariate analyses indicate that youth with lower functional mental skills were less likely to be living independently, with 3% of youth who were given low scores by parents on the functional mental skills scale[*] living independently, compared with 12% of youth who scored high (p<.001). Not surprisingly, most youth needed to be to able to perform basic self-care skills very well to be able to live independently; 12% of those who had high self-care ability scores lived independently, compared with 2% of those with medium self-care skills (p<.001) and only 1% of those with low self-care skills (p<.001). However, results of a multivariate analysis, presented later in this section, indicate no significant independent relationship between living independently and functional abilities when disability category and other youth characteristics were held constant.

Individual Characteristics—Gender did not appear to be significantly related to living independently, regardless of disability category. Being white was associated with a higher likelihood of living independently compared with being black in these bivariate relationships only (14% vs. 5%; p<.01). Those who were older were not significantly more likely to be living independently than those who were younger. Although, as discussed in Chapter 2, older youth in the NLTS sample tended to be more severely disabled, the lack of relationship between age and living independently continued even when the severity of the youth's disability was controlled for.

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[*] See Appendix C for definitions of these scales.

Household/Community Characteristics—Parents' household income was not related to the likelihood of youth living on their own. Youth originating from single-parent families were as likely as those from two-parent families to be living independently. Originating from a rural (16%) as opposed to an urban area (7%) was associated with a higher likelihood of living independently in bivariate relationships (p<.05); attending school in a suburban area was not significantly related to the rate of youth living independently.

Other Youth Outcomes—At this early point after secondary school, leaving school with a diploma, as opposed to dropping out, was not related to the likelihood of living on one's own. Youth who dropped out (16%) were significantly more likely than those who aged out (6%) to be living independently (p<.01), probably because of the generally greater severity of disability among youth who aged out.

It would be expected that financial independence, usually achieved through competitive employment, would be a prerequisite for a youth to be able to leave a parent's home and establish an independent household. This expectation holds true for youth with disabilities, with 30% of currently employed youth living independently, compared with 8% of youth not employed (p<.01). Further, youth who were working full time (21%) were twice as likely to be living independently as those working part time (10%; p<.05).

Unlike competitive employment, sheltered employment was not related to an increased likelihood of independence, when compared with not being employed. Only 3% of youth who worked in sheltered workshops lived independently, compared with 8% of youth not employed, perhaps because youth who worked in sheltered workshops tended to be lower functioning and generally earned little for their labor. Although current competitive employment increased the probability of living independently, being employed in the previous year did not. Other signs of financial independence, such as having a savings or checking account or a credit card were not related to an increased likelihood of living on one's own.

Although competitive employment was related to an increased likelihood of independent living, it is clearly not a sufficient condition for youth to choose to live independently; almost 44% of out-of-school youth who were working at full-time paid jobs continued to live with parents. Conversely, some who were living on their own were not financially independent, in that 20% continued to receive money for living expenses from their families. The rate at which youth received financial support from families did not significantly differ for youth from the various disability categories or for youth with differing individual or family background characteristics. Not surprisingly, among youth who lived independently, those living in college dormitories were the most likely to receive money for living expenses from their family, with 88% of those in dormitories receiving money, compared with 16% of those living with a spouse or roommate (p<.001).

Multivariate Analysis of Independent Living

A multivariate logit analysis was performed to identify the independent relationships of each factor discussed above to whether youth who had been out of secondary school up to 2 years were living independently. Table 7-13 reports the coefficients of that analysis, as well as the findings converted to the estimated change in the probability of living independently that was associated with each factor, with all other factors held at their mean values.

The multivariate analysis was statistically significant ($p<.0001$), although only five of the factors included in the analysis had independent significant relationships to the likelihood of living independently. Four of the five factors were measures of other activities of youth: marriage, wages earned, and indicators of whether youth had been enrolled in a 4-year college or in another kind of postsecondary school in the previous year. Engaging in any of these activities was powerfully predictive of independent living.

It is not surprising that attending a postsecondary school was strongly related to independent living, given that living in a college dormitory was one of the residential arrangements considered to be independent. Similarly, living in military housing, another of the independent living arrangements, was a residential option only for youth who were employed, contributing to the strong relationship between wages earned and living independently. Even for those not in the military, earning higher wages would increase the ability of youth to support their own households financially.

The extremely strong relationship between marriage and living independently also was logical, in that living with a spouse or roommate was the most common of the independent residential arrangements of youth and the living arrangement of virtually all married youth. However, this finding is also somewhat worrisome. Findings reported in Chapter 6 suggest that the vast majority of married youth were young women; a large fraction of them were dropouts from high school. Their average age was 18. Although we look positively at young people with disabilities who successfully established independent living arrangements, we have to question whether the scenario of teenage girls, perhaps with children, achieving residential independence through marriage has promise for longer-term independence. These young women were less likely than young men or unmarried women to have been engaged in any kind of work or schooling after high school (see Chapter 10). Without work experience or schooling to increase their skills, their prospects for becoming financially self-supporting may not be good. Only further research will answer the question whether these young women will become financially, as well as residentially, independent in the future.

Beyond the relationships between independence and marriage, work, and postsecondary education, there are few significant relationships to disability, individual, household, or community characteristics. This should not be interpreted as suggesting that these factors are unimportant in illuminating who became residentially independent. Rather, the factors related to work and schooling that were discussed above mediate the relationships between disability, demographics, and independence. For example, Chapter 8 demonstrates that higher-

Table 7-13

FACTORS RELATED TO LIVING INDEPENDENTLY AMONG OUT-OF-SCHOOL YOUTH

		Change in Estimated Probability	
Variable	Coefficient	Amount	For Increment
Disability factors			
Disability category:†			
Emotionally disturbed	.58	6.1	Emotionally disturbed vs. learning disabled
Speech impaired	.08	.7	Speech impaired vs. learning disabled
Mentally retarded	-.82	-4.9	Mentally retarded vs. learning disabled
Visually impaired	1.26**	17.0	Visually impaired vs. learning disabled
Hard of hearing	.41	4.0	Hard of hearing vs. learning disabled
Deaf	.68	7.4	Deaf vs. learning disabled
Orthopedically impaired	-.40	-2.8	Orthopedically impaired vs. learning disabled
Other health impaired	.41	4.1	Other health impaired vs. learning disabled
Severely impaired	-.54	-3.6	Severely impaired vs. learning disabled
Functional mental skills score	-.00	-.00	High vs. medium (16 vs. 12)
Self-care ability score	-.03	-.8	High vs. medium (11 vs. 8)
IQ score	.01	1.2	100 vs. 80
Individual characteristics			
Age	.00	.1	Age 20 vs. 18
Youth was male	-.18	-1.7	Male vs. female
Youth was a minority	-.14	-1.3	Minority vs. nonminority
Youth was married	4.46***	80.6	Yes vs. no
Household characteristics			
From a single-parent household	-.17	-1.6	Yes vs. no
Household income	-.07	-2.0	$38,000 to $50,000 vs. <$12,000
Community characteristics			
Youth attended school in urban area	.10	.9	Urban vs. suburban
Youth attended school in rural area	.27	2.6	Rural vs. suburban
School-related factors			
Youth graduated from high school	-.65	-7.7	Graduated vs. dropped out
Youth aged out of high school	-1.04	-11.0	Aged out vs. dropped out
Youth attended special school	.02	.2	Yes vs. no
Youth received occupational therapy or life skills training	-.01	-.1	Yes vs. no
Postsecondary experiences			
Attended a 2-year college or vocational school	.87***	9.8	Yes vs. no
Attended a 4-year college	.32***	13.1	Yes vs. no
Total weekly wage youth earned	.00***	14.1	$400 vs. $200

Note: The analysis includes youth who were out of high school (N = 1,404). For details on the variables appearing in this analysis, see Appendix C. Unweighted means and correlations of the dependent variable and all other variables in the analysis are presented in Appendix D, Table D7-1.

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* $p < .05$, ** $p < .01$, *** $p < .001$.

functioning youth were more likely to be competitively employed, thereby earning higher wages than youth in sheltered employment or, of course, than those not employed. Similarly, Chapter 9 demonstrates that higher-functioning youth were more likely to be enrolled in postsecondary schools. When these work- and school-related activities are included in an analysis with measures of functional ability, they predominate; little variation in residential independence is left to be explained by a direct relationship with functional abilities, apart from their influence on youths' employment and postsecondary school enrollment.

Looking to the Future

As noted earlier in this chapter, it is unreasonable to expect that out-of-school youth would have achieved full residential independence in just the first 2 years after high school. Did parents expect that such independence would be achieved by their children with disabilities in the future? Did independence in fact increase as young people were out of high school longer? These questions are addressed below.

Parent Expectations for Residential Independence

Parents of youth still living at home were asked to speculate about the future independence of their children by reporting their perceptions of the likelihood that the youth would live away from home, on their own, in the future. Because there were no significant differences between the expectations of parents of youth who were still in secondary school and parents of those out of secondary school, their responses are not differentiated here.

Although the majority of youth continued to live with parents, parents of youth still living at home expected that most eventually would live away from home, on their own, without supervision. Figure 7-4 presents the expectations of parents regarding the future residential independence of their children with disabilities. Overall, 78% of parents indicated they expected that their child "probably" or "definitely" would achieve this form of independence.

There were significant differences in expectations for youth with different disabilities. For example, 90% of youth with learning disabilities and 82% of youth with speech impairments were expected definitely or probably to live away from home on their own. Hearing impairments apparently were not perceived by parents to be significant obstacles to residential independence; expectations for deaf and hard of hearing youth also were relatively high (82% and 85%). In contrast, 19% of youth who were deaf/blind and 22% of youth with multiple handicaps were expected by parents to live away from home unsupervised, significantly lower percentage than for those with learning disabilities, for example (p<.001). Almost half of youth classified as mentally retarded or orthopedically or other health impaired, and more than three-fourths of those classified as multiply handicapped or deaf/blind were expected to require a supervised living arrangement in the future.

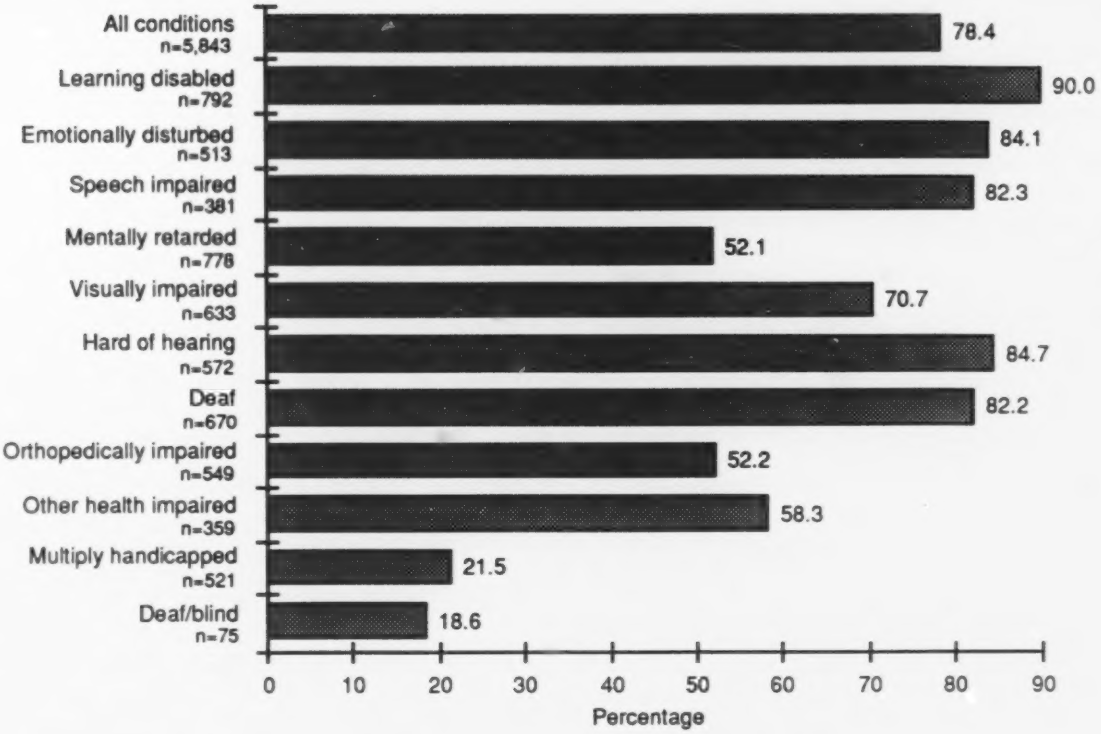

FIGURE 7- 4 YOUTH REPORTED BY PARENTS AS LIKELY TO LIVE INDEPENDENTLY[†] IN THE FUTURE

[†] Independence includes living alone, with a spouse or roommate, or in military housing or in a college dormitory.

Source: Parent interviews.

How consistent were parents' expectations for future residential independence with the functional abilities of youth in each of these disability categories? Overall, there appears to be the same systematic relationship between daily living skills and parental expectations for future independence as there is between daily living skills and present living arrangements (Table 7-14). The absence of self-care skills strongly related to future expectations; only 3% of youth who scored low on the self-care scale were expected to live away from home unsupervised. Conversely, 84% of youth with high scores on the self-care skills scale and 92% of youth with high scores on the functional mental skills scale were expected to achieve residential independence. Although almost 95% of youth who actively participated in household responsibilities (a score of 15 or 16) were expected to live away from home unsupervised, not participating in many household chores did not necessarily carry with it a negative expectation for future residential independence. More than 60% of youth who rarely participated in household responsibilities (score of 4 to 8) still were expected to live independently in the future.

Table 7-14

DISABILITY CHARACTERISTICS RELATED TO PARENTS' EXPECTATIONS FOR FUTURE RESIDENTIAL INDEPENDENCE OF YOUTH WITH DISABILITIES

Factors	Percentage with Expectations for Child Living Away from Home Unsupervised As:† Definitely or Probably Will	Definitely or Probably Won't	S.E.	N
Self-care skills scale score				
3 to 6	3.1	96.9	2.3	342
7 to 10	29.4	70.6	3.3	980
11 or 12	84.4	15.6	1.3	4,468
Functional mental skills scale score				
Low (4 to 8)	21.4	78.6	3.6	825
Medium (9 to 14)	70.4	29.6	2.4	2,258
High (15 or 16)	91.6	8.4	1.2	2,646
Household activities scale score				
Low (4 to 8)	62.6	37.4	2.9	1,717
Medium (9 to 14)	84.7	15.3	1.5	3,178
High (15 or 16)	94.4	5.6	2.6	401

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† Includes youth who were not already living independently. Percentage of parents who reported the likelihood that youth would live "away from home, on his/her own, without supervision" in the future as "definitely will" and "probably will," or "probably won't" and "definitely won't."

Source: Parent interviews.

Although we found earlier that gender did not appear to be related to whether youth with disabilities were living independently, parents more frequently expected their sons than their daughters to live independently in the future, with 81% of sons expected to live unsupervised, compared with 72% of daughters (p<.001).

Although being white was associated with a higher likelihood of living independently at the time of the interview, there was no significant difference in black and white parents' expectations for the future residential independence of their children. Conversely, Hispanic youth did not significantly differ from other youth in their rate of living independently in 1987, but Hispanic parents were significantly less likely to feel that their children would live away from home in the future (59% Hispanic vs. 79% black, 80% white; p<.001). This may be due more to cultural differences than to differences in disability characteristics, since, as presented in Chapter 2, Hispanic youth were not significantly different from others in characteristics that have been found to affect a parent's future residential expectations, such as disability category.

Finally, in the same way that current employment increased the probability of actually living independently, youth who were employed and still living at home were more frequently expected to live independently in the future (85%), compared with those not employed (68%; p<.001).

There were no significant relationships between residential independence and socioeconomic status or whether youth lived in an urban, suburban, or rural area.

Changing Residential Arrangements Over Time

Although we have demonstrated that the rate of living independently after secondary school was lower for youth with disabilities than for the general population of youth, NLTS data suggest that the extent of residential independence was higher for youth who had spent a longer time out of secondary school (Figure 7-5). About 6% of youth who had been out of secondary school 1 year or less lived independently, a significantly higher rate than the rate for secondary school

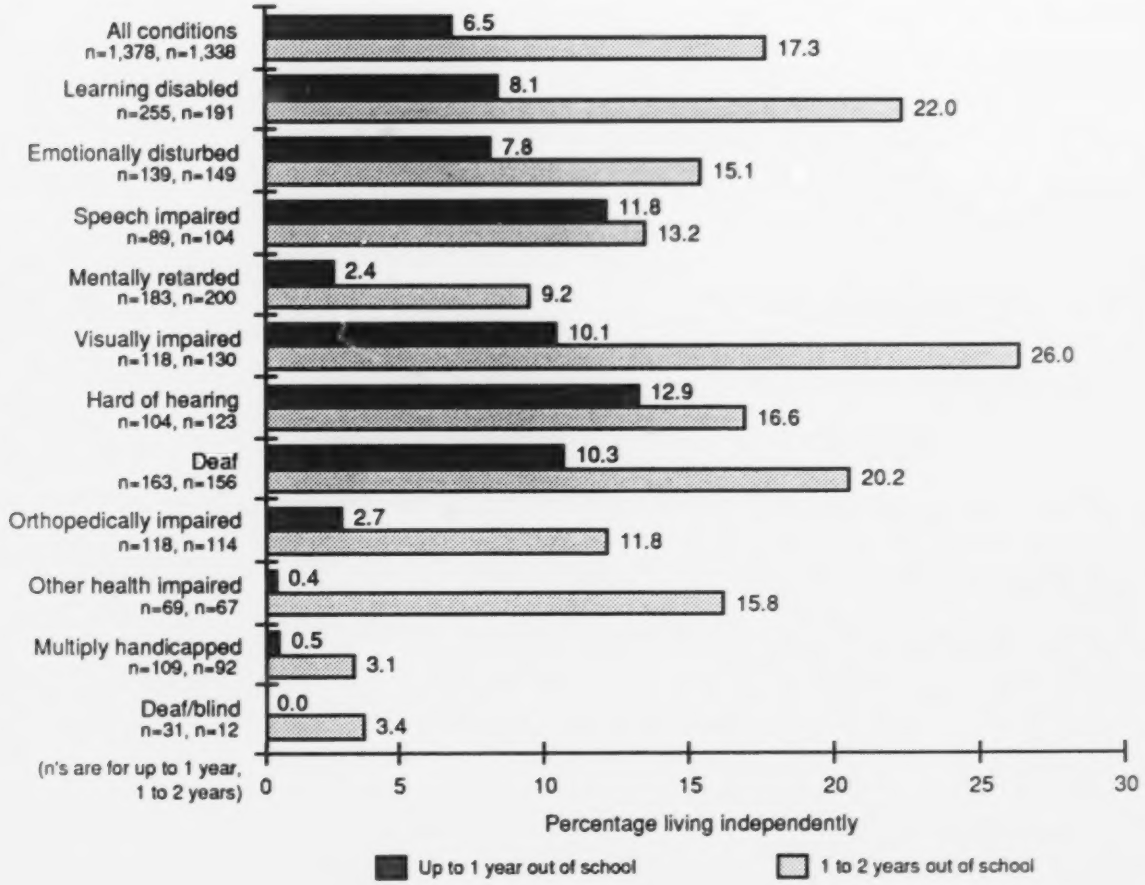

FIGURE 7-5 DIFFERENCES IN RATES OF LIVING INDEPENDENTLY[†] IN THE FIRST AND SECOND YEARS AFTER SECONDARY SCHOOL

[†] Independent living includes living alone, with a spouse or roommate, in a college dormitory, or in military housing.

Source: Parent interviews.

students (less than 1%; p<.001). The rate was significantly higher again for youth who had been out of secondary school from 1 to 2 years (17%; p<.001), suggesting a trend over time toward greater independence. This trend toward greater independence over time is seen for youth in all disability categories.

To what extent did this apparent trend toward increasing independence hold up over the subsequent 2 years? Although we are not yet able to answer this question for all youth with disabilities, we can address it for youth with learning or emotional disabilities, speech impairments, or mild/moderate mental retardation, using data from the NLTS exiter substudy described in Chapter 1.

Substudy data corroborate the presence of a trend toward greater residential independence, as presented in Table 7-15. Almost one-third of youth in the categories included in the exiter substudy (30%) who were out of high school between 2 and 3 years lived independently, compared with 18% who had been out of high school between 1 and 2 years (p<.05). There was a continued increase in the rate of living independently, although not a significant one, for youth who had been out of high school between 3 and 4 years (36%).

Table 7-15

LIVING INDEPENDENTLY BY LENGTH OF TIME SINCE HIGH SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

		Years Since High School:			
Disability Category		Less than 1	1 to 2	2 to 3	3 to 4
Percentage of youth who lived independently†					
All four conditions		6.3	18.0	30.1	36.1
		(2.1)	(3.4)	(4.0)	(4.3)
	N	429	393	421	370
Learning disabled		6.9	21.8	29.6	41.3
		(3.2)	(5.2)	(5.8)	(6.4)
	N	143	174	141	163
Emotionally disturbed		5.8	15.4	43.7	27.5
		(3.8)	(7.2)	(8.2)	(9.3)
	N	92	67	90	63
Speech impaired		5.2	13.3	32.1	37.4
		(4.4)	(8.0)	(9.5)	(12.2)
	N	68	43	64	39
Mildly/moderately mentally retarded		5.2	9.6	23.3	26.6
		(3.0)	(4.3)	(5.7)	(6.5)
	N	110	99	109	96

Note: Standard errors are in parentheses.

† Independent living includes living alone, with a spouse or roommate, in a college dormitory, or in military housing.

Source: 1987 parent interviews and 1989 exiter substudy parent/youth interviews.

Virtually all of the increase in the percentage of youth living independently resulted from youth who had previously lived with parents and then moved away from home to independent living situations; the rate of youth living with parents fell from 79% when youth had been out of school less than 2 years to 57% for the same youth when they had been out of secondary school between 2 and 4 years (p<.001).

Despite the continued relatively high rate of living with parents, youth who did achieve residential independence were more likely to be those expected by their parents to become independent. Although 56% of the youth expected by parents definitely to live independently were still living with parents or other family members, 44% had left their parents' home to set up independent households by 1989 (Figure 7-6). In contrast, only 28% of youth whose parents thought they probably would live on their own were doing so in 1989 (p<.05), and only 7% of those whose parents thought they definitely would not live independently were living on their own 2 years later (p<.001).

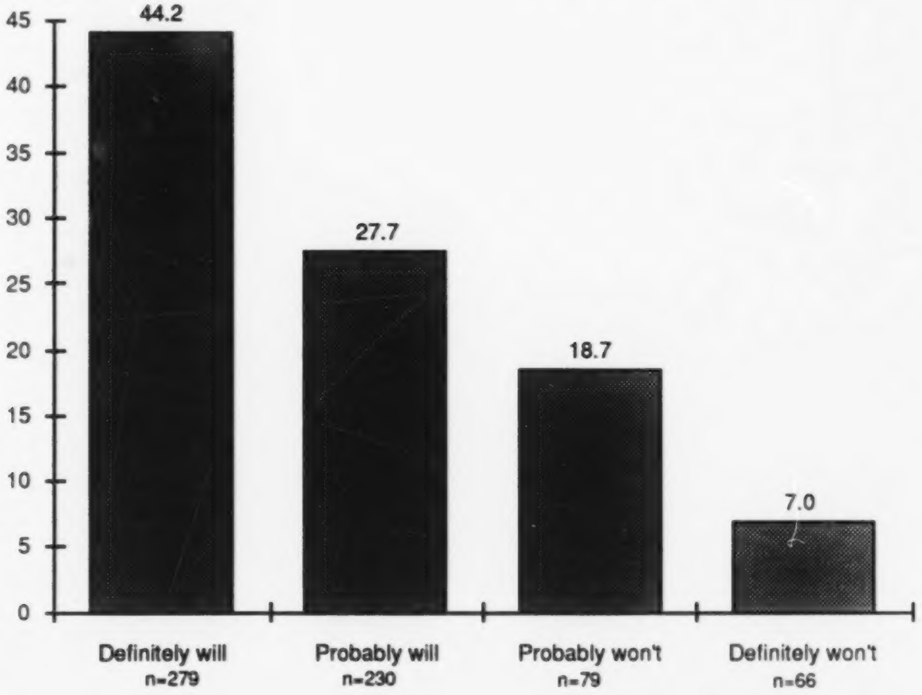

FIGURE 7-6 PERCENTAGE OF YOUTH LIVING INDEPENDENTLY[†] BY PARENTS' EXPECTATIONS FOR THEIR FUTURE

[†] Independent living includes living alone, with a spouse or roommate, in a college dormitory, or in military housing.

Source: Parent interviews.

There was an increase, although not a significant one, in the percentage of youth living in a correctional facility at the time of the exiter interview, with most of this increase accounted for by the climbing arrest rate for youth with emotional disturbances. Almost 8% of these youth were living in a correctional facility at the time of the 1989 interview, compared with 1% or fewer of those with other disabilities (p<.05).

Summary

This chapter has focused on several issues of independence, including a variety of household maintenance skills, financial management activities, and living arrangements. Although few would expect youth to have reached full financial and residential independence during the early years after high school, the skills they were acquiring and the early experiences they had were both preparation for and harbingers of the possibility of later adult independence. The questions that have guided our inquiry and their answers are summarized below:

- To what extent did young people with disabilities participate in household responsibilities? Generally, youth with disabilities were quite involved with household responsibilities, with a large majority of youth reported as performing each of four chores we investigated at least "sometimes." Youth were more likely to be responsible for housekeeping tasks that were closer to self-care tasks, and that usually did not require leaving the house. The rate of participating in household chores was fairly consistent for youth in most disability categories, except for those with physical or multiple handicaps (including deaf/blind); among them, half or more rarely participated in household chores.

- What characteristics of youth, their households, and/or their school experiences were related to more frequent participation in household responsibilities? The pattern in our society of females being more actively involved in household responsibilities held true for youth with disabilities, with females more frequently responsible for household chores than males, regardless of disability category. In addition, older youth typically took on more responsibility for the care of their surroundings. Black youth with disabilities were significantly more likely than youth who were white or Hispanic to perform household chores, while youth who lived in single-parent households were more likely to be responsible for household chores than those from two-parent households. Having received life skills training from secondary schools was not significantly related to a greater frequency of doing chores, independent of gender and functional ability.

- To what extent did youth with disabilities participate in financial management activities? The majority of out-of-school youth with disabilities did not have savings or checking accounts or credit cards in their own names. Having a savings account was the most frequent activity; yet fewer than half of the youth who were no longer in secondary school had savings accounts; fewer than 1 in 10 had checking accounts or credit cards in their own names. There generally were only small differences between disability categories in patterns of financial responsibility.

- What characteristics of youth and their households were related to higher rates of financial independence? Higher-functioning youth were significantly more likely to have savings or checking accounts or credit cards. There were few differences in patterns of financial responsibility related to youth background and family characteristics, other than youth from higher-income being more likely to have savings accounts, and youth who were currently employed being significantly more likely to have savings accounts or credit cards.

- How did financial responsibility change once youth were out of school for a longer period? Among youth in the NLTS exiter substudy who had been out of school 2 to 4 years, the rate of having a savings account remained the same, but there was a large increase in the rates of having checking accounts and credit cards.

- What were the residential arrangements of youth with disabilities during secondary school and during the 2-year period immediately after secondary school? Most youth with disabilities, both while in secondary school and during the first 2 years after leaving school, lived with a parent or legal guardian (95% and 75%). For the minority of secondary school students not living with a parent, most still lived in family settings—with an aunt, uncle, grandparent, or adult sibling. Youth who lived alone, with a spouse or roommate, in a college dormitory, or in military housing were considered to be living independently. In the first 2 years after high school, only a minority of youth with disabilities (12%) achieved an independent living arrangement. Out-of-school youth who were classified as learning disabled, visually impaired, deaf, or hard of hearing were the most likely to be reported by parents as living independently, whereas those classified as orthopedically or multiply impaired (including deaf/blind) or mentally retarded were the least likely.

- How did youth who were living independently immediately after secondary school differ from youth who were not living independently? Lower- functioning youth in terms of intellectual and self-care abilities were less likely to be living independently. Although gender did not appear to be significantly related to living independently overall, females were more likely than males to be living with a spouse or roommate. Current employment and amount of wages earned were both strongly related to the likelihood of living independently. At this early point after secondary school, leaving school with a diploma, as opposed to dropping out, did not affect the likelihood of living on one's own.

- What were parents' expectations for the future residential independence of youth still living at home? Although the majority of youth continued to live with parents at the time of the interview, parents of youth still living at home expected that most youth (78%) eventually would live away from home, on their own, without supervision. Almost half of youth classified as mentally retarded or orthopedically or health impaired, and three-fourths of those classified as multiply handicapped or deaf/blind, were expected to require a supervised living arrangement in the future.

- How did residential arrangements change over time? Although the rate of living independently was lower for youth with disabilities than for the general population of out-of-school youth, there was a higher rate of independent living arrangements among youth with disabilities who were out of school a longer period of time. Among youth with disabilities as a whole, 6% of those out of school less than 1 year lived independently, compared with 17% of those out of school 1 to 2 years ($p<.001$).

  For youth in the NLTS exiter substudy, we find a continued increase in the rate of living independently, once youth had been out of high school between 2 and 4 years, with the rate increasing from 6% of youth who had been out of school less than 1 year to 18% of those out of school 1 to 2 years, 30% when the same youth had been out of school 2 to 3 years, and 36% for those out of secondary school 3 to 4 years. More than half of youth with learning or emotional disabilities, speech impairments, or mild or moderate mental retardation continued to live with their parents between 2 and 4 years after high school. Youth who achieved residential independence in these later years were more likely to be those expected by their parents to become independent.

These findings give some cause for optimism for the future independence of youth with disabilities. Data suggest that youth were becoming increasingly involved in managing their own financial affairs and were moving away from parents' homes and into more independent living arrangements as time passed. Earning wages through employment was one factor that contributed to a higher likelihood of independence; it is the focus of the following chapter.

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8 THE WORKING WORLD AWAITS: EMPLOYMENT EXPERIENCES DURING AND SHORTLY AFTER SECONDARY SCHOOL

by Ronald D'Amico

The key role of employment in the transition process is clear in the OSERS transition model, which establishes "a national priority on improving the transition from school to working life for all individuals with disabilities" (Will, 1984). Underlying this focus is the recognition that finding steady employment often is central to young adults' developing feelings of self worth and attaining economic and psychological independence. Indeed, the report of the Survey of Disabled Americans concludes that disabled people who work are "much more satisfied with life, much less likely to consider themselves disabled, and much less likely to say that their disability has prevented them from reaching their full abilities as a person" (ICD, 1986: p. 5).

As youth with disabilities leave school, their success in the labor market may be hampered in some cases by the nature or severity of their disability. Just as important, Bowe (1978) reminds us, are the barriers to their employment created by society. He cites the historical importance of limited physical access and discrimination or faulty perceptions by employers. Indeed, Levitan and Taggart (1977) cite results of a survey in which employers expressed reluctance to hire the disabled under any circumstances. It is the intent of the recently enacted Americans with Disabilities Act (P.L. 101-336) to eliminate obstacles to employment such as these in private-sector employment and public services, transportation, and telecommunications.

Obstacles to employment also may result from the fact that past cohorts of youth with disabilities often have entered adulthood with little orientation to the world of work and with limited marketable skills. Although discriminatory attitudes and practices may be slow to change, improving the work readiness of youth with disabilities is directly amenable to social intervention and can have sizable payoffs. Indeed, practitioners are convinced that nearly all persons with disabilities, even the severely disabled, can perform meaningful work if given the proper training and support (e.g., Brown et al., 1983; Wehman and Hill, 1981). In light of this view, the Education for All Handicapped Children Act and provisions of the Carl Perkins Vocational Education Act represent significant advances in providing that all children, regardless of their disability, are entitled to a free appropriate public education and must be apprised of their opportunities for vocational training.

However welcome these initiatives are, the absence of information about the transition experiences of youth with disabilities has hampered efforts at assessment, evaluation, and implementation. Fortunately, recent studies have begun to address this need by reporting employment rates and job characteristics for youth with disabilities who recently left secondary school and by identifying concomitants of a successful transition, such as high school completion, gender, and vocational course taking (e.g., Mithaug, Horiuchi, and Fanning, 1985; Hasazi, Gordon, and Roe, 1985; Fardig et al., 1985; Zigmond and Thornton, 1985; Sitlington, Frank, and Cooper, 1989). Generalization from these studies has been limited, however, by their relatively small samples drawn from youth in just a few disability groups and from selected states or communities. The NLTS, with its large representative sample of youth in all federal disability categories, represents a major breakthrough in our knowledge and a potentially important benchmark for these and other studies.

This chapter provides a broad overview of the employment experiences of youth with disabilities and addresses a number of key questions. These include, for secondary school students:

- To what extent did secondary school students with different disabilities gain work experience through work-study jobs or other paid employment?
- What characteristics of students were related to their employment rates (e.g., gender, grade level)?
- How did employment rates for students with disabilities compare with those for secondary school students in the general population?
- What were the job profiles of employed secondary school students with disabilities?
- What secondary school training or services were provided students to help prepare them for employment?

For youth who had left secondary school, we address these questions:

- To what extent were out-of-school youth with disabilities working at the time of the survey and in the previous year?
- Who had paid jobs? What individual, household, community, and school factors were related to whether youth with disabilities had paid jobs in the early years after secondary school?
- What were the job profiles of employed youth with disabilities who had been out of secondary school up to 2 years?
- How did employment experiences of youth with disabilities compare with those of youth in the general population who had recently left secondary school?
- How did rates of employment change over time?

Following a format suggested by these questions, this chapter is divided into two major sections. The first section focuses on youth who were still in secondary school at the time of the 1987 survey, and the second section details the employment of youth who had left secondary school up to 2 years previously.

The Employment Experiences of Secondary School Students

Researchers and educators seem to have come full circle in their appraisal of the value of employment for high school students in the general population. A decade-and-a-half ago, members of the federally convened Panel on Youth suggested that employment for high school students should be encouraged as a way of instilling desirable work habits, developing job skills needed in the postschool period, and decreasing the forced dependency of adolescence (Panel on Youth, 1974). Recently, investigators have been more preoccupied with falling standards of academic excellence (e.g., National Commission on Excellence in Education, 1983) and the so-called "premature affluence" of working students (Bachman, Johnston, and O'Malley, 1981), and have begun to question whether the jobs held by high school students are useful as preparation for adult work experiences (e.g., Greenberger and Steinberg, 1986). Empirically, there is some evidence that high school employment reduces unemployment shortly after school (e.g., Meyer and Wise, 1982), but longer-term results are less clear.

For youth with disabilities, practitioners are much less equivocal about the value of high school work experience (e.g., Hasazi, 1985). For example, Wehman, Kregel, and Barcus (1985) identify work experience as imperative to prepare special education students fully for a successful transition to adulthood. They write:

> Students should train and work in the community whenever possible. This is not only to expose them to the community and work expectations, but to expose future employers and coworkers to their potential as reliable employees. ...[It] appears that this form of service delivery will be a truly vital aspect of meaningful transition into natural work environments. (p. 29)

Accordingly, community-based work experience often is a key component of individual transition plans, and it is increasingly being fostered in many states' programs (e.g., California's Project WorkAbility).

In this section, we examine the extent to which high school students with disabilities were gaining work experience, either as part of a work-study program or otherwise, and some characteristics of the jobs they held. Further, we will examine the incidence of vocational course taking to prepare youth for employment.

Rates of Employment of Secondary School Students

Parents of students in grades 7 to 11* were asked whether youth "... had a work-study job in the past 12 months, that is, a job he/she does as part of the school program or ... for school credit," and, if so, whether the job was paid or unpaid. Parents also were asked whether their children had done *any* paid work in the previous year, other than work around the house. Answers to these questions provide information on the extent to which students gained work experience during secondary school. Figure 8-1 shows responses to these questions for youth in each disability category.

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* Information on the incidence of work-study employment was not asked of recent graduates (i.e., those who were 12th-graders in the previous school year). Parents of all youth were asked whether their child had ever worked, but because recent graduates had already been out of school several months by the time of the survey, it was not possible to determine whether employment reported for 12th-graders had occurred before or after they left school. This section, therefore, includes students who had recently been in grades 7 to 11 or not assigned to a grade level.

Overall, about 14% of students had had a work-study job in the previous year. Work-study employment was much more common for youth classified as mentally retarded (25%), deaf (27%), or multiply handicapped (24%), and lower for those classified as speech impaired (8%) or hard of hearing (9%; p<.05).

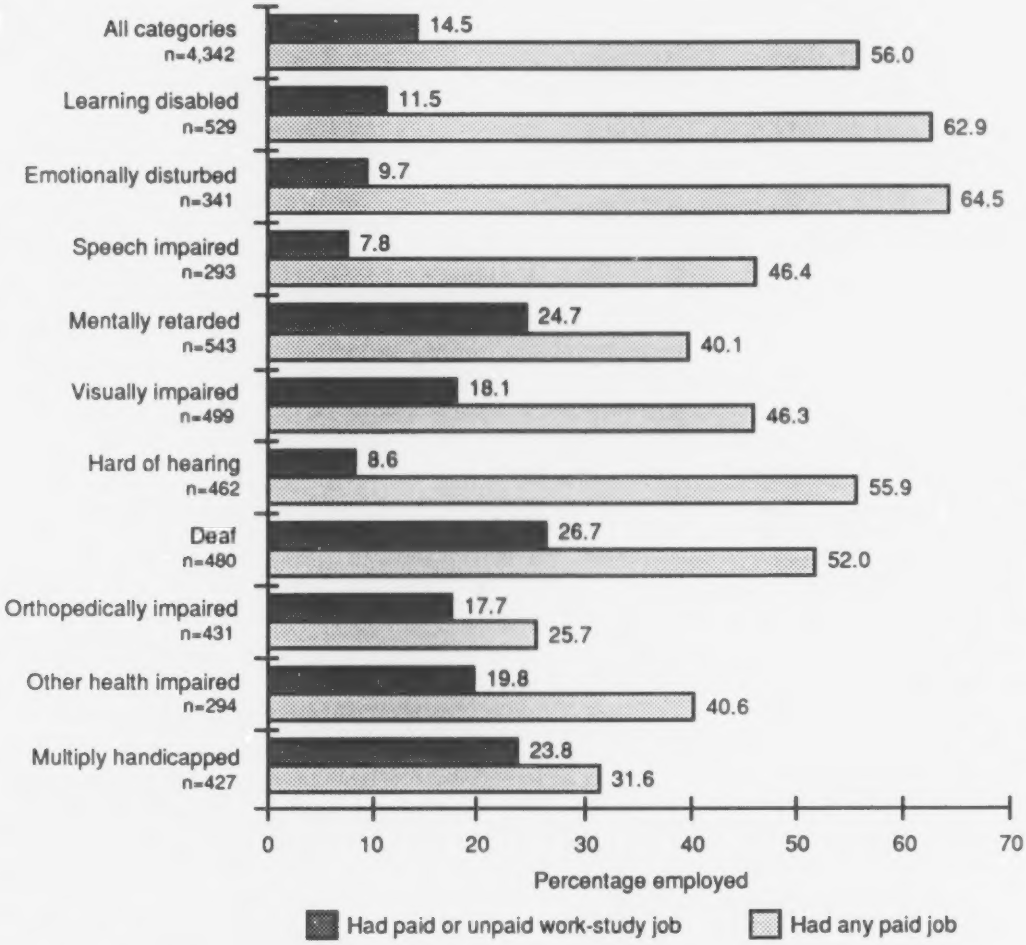

FIGURE 8-1 WORK-STUDY AND ANY PAID EMPLOYMENT IN THE PRECEDING YEAR AMONG SECONDARY SCHOOL STUDENTS WITH DISABILITIES

Note: The percentage who had any paid job includes those with paid work-study jobs. Data are for students in grades 7 to 11, and those not assigned to a grade level. "All conditions" includes youth in all 11 disability categories; data are reported separately for categories with at least 30 cases.

Source: Parent interviews.

Beyond this, many youth had held paid jobs apart from work-study programs. Overall, 56% of students had had at least one paid job in the previous year. From one-half to nearly two-thirds of youth classified as learning disabled (63%), emotionally disturbed (64%), hard of hearing (56%), or deaf (52%) had gained work experience through paid work during the year, far more than those classified as orthopedically impaired (26%) or multiply handicapped (32%; p<.01). In general, youth in disability categories with the highest rates of total paid employment were somewhat less likely to have had work-study jobs, although there were exceptions (e.g., youth classified as deaf had moderate to high rates of both types of employment).

A comparable 12-month employment rate for high school students in the general population is not readily available. However, data from the Current Population Survey (U.S. Department of Labor, 1988) show that 57% of youth aged 16 to 17 in 1986 worked sometime during the year, and D'Amico (1984) reported that about 61% of 11th-graders in the early 1980s worked at least 1 week during the school year. By these yardsticks, students in at least some disability categories were gaining work experience at about the same rate as their nondisabled peers.

Gender Differences in Employment Rates

A large body of research suggests that gender is strongly predictive of the employment experiences of persons in the general population. Males and females generally have markedly different employment patterns over the life cycle and work in different kinds of jobs at very different wages. These differences are evident even among teenagers, who are just beginning their work careers (e.g., Greenberger and Steinberg, 1983). Were the work experiences of male and female youth with disabilities also different?

We pursue the answer to this question repeatedly throughout this chapter in different contexts. Table 8-1 provides an initial look, by reporting gender differences in the extent to which students had gained work experience in work-study or other paid jobs in the previous year. Overall, among those in their junior year or earlier, 13% of males and 18% of females had had a work-study job. The pattern of differences between young men and women across categories was quite uniform; no gender differences in work-study participation were statistically significant, suggesting that males and females participated in work-study programs about equally.

By contrast, males were much more likely than females to have had any paid job in the previous year. Overall, 60% of males had worked for pay, compared with 46% of females (p<.01). The gender difference was somewhat smaller within most of the disability categories, however, and was under 10 percentage points and generally nonsignificant among those classified as mentally retarded; visually, orthopedically, or other health impaired; or multiply handicapped. The large overall gender difference, therefore, is attributable at least partly to the fact that females tended to be concentrated in disability categories with lower employment rates for both males and females (e.g., visually impaired, 44% female), while males were concentrated in categories with higher employment rates (e.g., learning disabled, 27% female).

Table 8-1

RATES OF WORK-STUDY AND ANY PAID EMPLOYMENT FOR MALE AND FEMALE SECONDARY SCHOOL STUDENTS WITH DISABILITIES

	In the Preceding Year, Student Had:				
	Paid or unpaid work-study job		Any paid job		
Disability/Gender	%	S.E.	%	S.E.	N
All conditions					
Male	13.1	1.6	60.5	2.2	2,617
Female	17.5	2.5	46.2	3.2	1,725
Learning disabled					
Male	10.0	2.1	66.5	3.2	387
Female	15.5	4.2	53.1	5.7	142
Emotionally disturbed					
Male	10.9	2.6	68.0	3.9	265
Female	5.4	3.5	52.4	7.8	76
Speech impaired					
Male	9.0	3.1	51.6	5.3	170
Female	6.3	3.1	39.4	6.1	123
Mentally retarded					
Male	24.2	3.3	42.2	3.7	310
Female	25.3	3.8	37.3	4.2	233
Visually impaired					
Male	20.1	4.3	49.2	5.3	291
Female	15.6	4.9	42.4	6.6	208
Hard of hearing					
Male	9.3	3.3	63.3	5.4	245
Female	7.7	3.4	46.8	6.3	217
Deaf					
Male	24.4	4.7	60.5	5.1	259
Female	29.1	5.5	43.0	5.8	221
Orthopedically impaired					
Male	16.1	4.5	24.7	5.3	229
Female	19.7	4.3	26.8	4.8	202
Other health impaired					
Male	20.3	4.6	41.4	5.6	175
Female	19.1	5.2	39.5	6.4	119
Multiply handicapped					
Male	24.1	5.2	34.9	5.6	265
Female	23.2	6.0	25.6	6.2	162

Note: The percentage who had any paid job includes those with paid work-study jobs. Includes students in grades 7 to 11, as well as youth who were not assigned to a grade level. "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

At the same time, the consistent pattern within all categories—and in some cases the sizable differences—must be underscored. Within some disability categories, the gender differences in employment of more than 10 percentage points were even larger than among youth in the general population. For example, D'Amico (1984) reported that 66% of 11th-grade males in the general population had worked sometime during the school year, compared with about 58% of females. More recent data suggest that the gender difference in employment for students in the general population has narrowed even further in recent years (e.g., U.S. Department of Labor, 1988).

Increasing Employment Rates by Grade Level

As we might expect, the incidence of both work-study and total paid employment was sharply higher for those in the upper grades. For example, 40% of 8th-graders reportedly had a paid job sometime during the year, compared with 53% of 9th-graders, 65% of 10th-graders, and 69% of 11th-graders, as Figure 8-2 shows. Work-study employment also shows an upward trend across these grades, with just 2% in such programs in grade 8 to about 25% by grade 11.

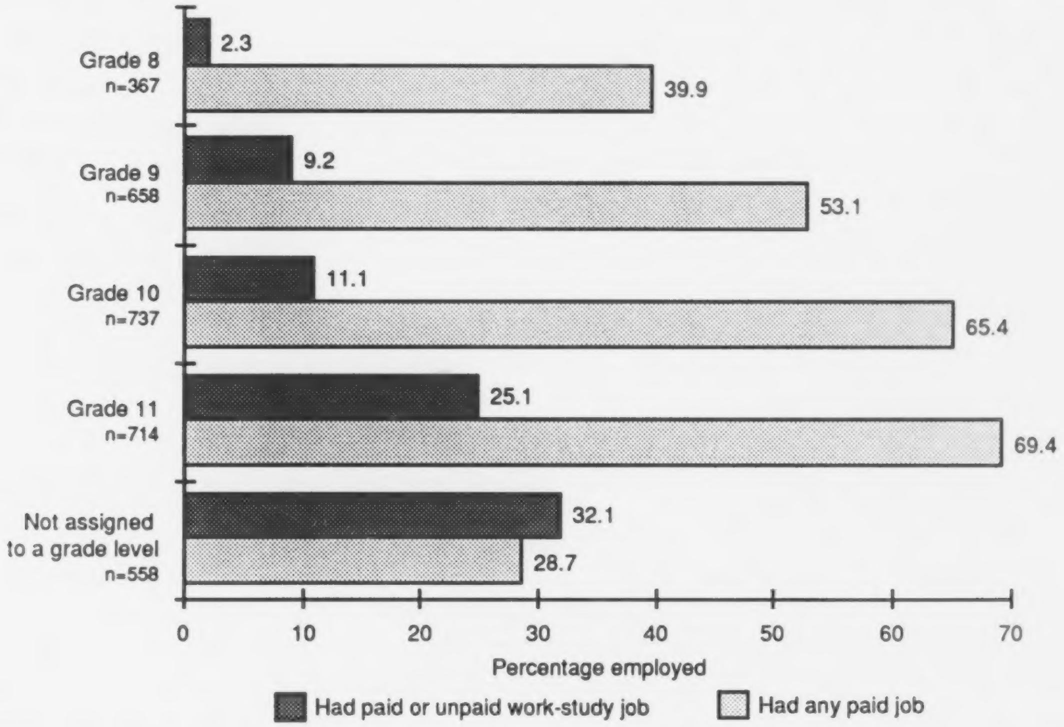

FIGURE 8-2 RATES OF WORK-STUDY AND ANY PAID EMPLOYMENT BY GRADE LEVEL

Source: Grade level is taken from student's school records. Employment data are from parent interviews.

Students not assigned to a grade level were even more likely to have work-study jobs, but were less likely to have worked overall. Extrapolating from the trend across grade levels, a substantial majority of 12th-grade youth with disabilities were likely to have gained work experience before leaving secondary school.

The extent to which schools can take credit for ensuring that their special education students have gained this experience is less clear, in that paid employment outside of work-study by far predominated, especially among males. However, schools may have provided job contacts or other important information for youth conducting their own job searches. In any case, many youth with disabilities left school with at least some previous paid work experience in their background.

Job Profiles of Employed Secondary School Students

In this section, we examine the types of jobs held by secondary school students with disabilities who worked, as well as the number of hours usually worked per week and the wages they earned.

Occupations

Employed students were gaining work experience in a wide variety of occupations, including clerical and skilled work (e.g., crafts) and semi-skilled blue-collar jobs (e.g., operatives), but their concentration in lower-skill job categories stands out (Table 8-2). For example, more than one-quarter of students who had a paid job during the year worked as laborers, a category that includes lawn mowing, grounds keeping, and general construction labor. Students who worked also were concentrated in service occupations, with more than 44% employed in occupations that included janitors and maids (8%), food service (16%), and childcare or babysitting (10%).

In general, the concentration of students in lower-skill occupations prevailed across most of the disability categories. In some cases, sizable differences emerged (e.g., 37% in clerical jobs for youth with orthopedic impairments, vs. 12% overall; 17% of youth with visual impairments worked as laborers, vs. 29% overall), but generally they were not statistically significant because of the small number of employed students.

As Table 8-3 shows, about equal proportions of young men and women with disabilities were employed in clerical occupations (just over 10%) and as janitors or maids (about 8%), but males were more likely to be craft workers (8% vs. 1%; p<.01) and laborers (34% vs. 9%; p<.01), and females were more likely to be employed as childcare workers (2% vs. 36%; p<.01). This pattern was quite uniform across the disability categories.

Table 8-2

OCCUPATIONS OF WORKING SECONDARY SCHOOL STUDENTS WITH DISABILITIES

Occupation	All Conditions	Primary Disability Category: Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped
Percentage working as:											
Clerical workers (e.g., stock clerks, secretaries, postal clerks)	11.7 (2.1)	11.8 (2.9)	9.2 (3.3)	22.4 (6.1)	7.5 (3.6)	18.0 (6.8)	13.4 (4.9)	16.3 (5.7)	36.9 (15.3)	24.1 (7.8)	6.1 (7.9)
Craft workers (e.g., apprentices, mechanics)	6.1 (1.6)	7.4 (2.3)	5.4 (2.6)	1.7 (1.9)	0.7 (1.2)	0.5 (1.3)	2.6 (2.3)	3.1 (2.7)	2.5 (4.9)	1.8 (2.4)	.0 (.0)
Operatives (e.g., packers, service station attendants)	6.0 (1.6)	6.4 (2.2)	4.3 (2.3)	2.5 (2.3)	6.1 (3.3)	5.3 (3.9)	2.2 (2.1)	5.3 (3.4)	4.7 (6.7)	2.3 (2.7)	15.1 (11.7)
Laborers (e.g., lawn mowing, grounds keepers)	28.6 (3.0)	27.3 (4.0)	35.4 (5.5)	32.7 (6.8)	31.2 (6.3)	17.0 (6.6)	23.0 (6.0)	32.8 (7.2)	11.3 (10.0)	19.4 (7.2)	36.9 (15.8)
Service workers											
Janitors and maids	8.2 (1.8)	7.2 (2.3)	10.6 (3.5)	7.6 (3.9)	11.0 (4.3)	11.8 (5.7)	6.8 (3.6)	6.4 (3.7)	4.7 (6.7)	19.1 (7.2)	10.7 (10.1)
Food service	15.7 (2.4)	16.5 (3.3)	16.8 (4.3)	16.6 (5.4)	9.9 (4.1)	14.1 (6.1)	19.6 (5.7)	11.6 (4.9)	12.2 (10.4)	11.9 (5.9)	3.6 (6.1)
Childcare, including babysitting	9.6 (1.9)	9.5 (2.6)	4.5 (2.4)	6.7 (3.7)	16.0 (5.0)	19.0 (6.9)	16.4 (5.3)	6.8 (3.9)	13.9 (11.0)	13.5 (6.3)	2.6 (5.2)
Other	11.0 (2.1)	10.8 (2.8)	10.0 (3.4)	5.3 (3.3)	14.9 (4.8)	13.1 (5.9)	14.4 (5.0)	16.5 (5.7)	5.0 (6.9)	6.8 (4.6)	14.6 (11.6)
Other (e.g., sales)	3.1 (1.1)	3.0 (1.5)	3.9 (2.2)	4.5 (3.0)	2.6 (2.2)	1.2 (1.9)	1.7 (1.9)	1.5 (1.9)	8.8 (9.0)	1.2 (2.0)	10.5 (10.0)
N	1,108	231	141	91	95	94	172	117	53	72	40

Notes: Standard errors are in parentheses.

Includes youth who were in grades 7 to 11 or who were not assigned to a grade level and who had a job in the previous year. "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

Table 8-3

OCCUPATIONS OF SECONDARY SCHOOL STUDENTS BY GENDER AND DISABILITY CATEGORY

	Primary Disability Category/Gender:											
	All Conditions		Learning Disabled		Visually Impaired		Hard of Hearing		Deaf		Other Health Impaired	
Occupation	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Percentage working as:												
Clerical workers (e.g., stock clerks, secretaries, postal clerks)	11.2 (2.4)	13.5 (4.7)	11.7 (3.2)	12.5 (6.5)	23.3 (8.4)	11.3 (9.8)	9.3 (5.0)	20.9 (10.4)	9.7 (6.0)	28.8 (10.0)	17.0 (9.5)	34.0 (12.4)
Craft workers (e.g., apprentices, mechanics)	7.6 (2.0)	0.7 (1.2)	9.3 (2.9)	0.6 (1.5)	0.9 (1.9)	.0 (.0)	3.9 (3.3)	.0 (.0)	4.7 (4.3)	.0 (.0)	3.0 (4.3)	.0 (.0)
Operatives (e.g., packers, service station attendants)	6.9 (1.9)	2.8 (2.3)	7.7 (2.7)	1.9 (2.7)	4.6 (4.2)	6.2 (7.5)	3.0 (2.9)	0.8 (2.3)	5.5 (4.6)	4.9 (4.8)	3.8 (4.9)	.0 (.0)
Laborers (e.g., lawn mowing, grounds keepers)	34.5 (3.6)	9.4 (4.1)	31.9 (4.6)	10.6 (6.1)	30.4 (9.2)	.0 (.0)	35.3 (8.2)	0.4 (1.7)	36.8 (9.8)	25.1 (9.6)	31.8 (11.8)	2.0 (3.6)
Service workers												
Janitors and maids	8.2 (2.1)	8.0 (3.8)	7.0 (2.5)	8.3 (5.5)	15.2 (7.2)	7.5 (8.2)	8.6 (4.8)	3.5 (4.7)	7.0 (5.2)	5.1 (4.9)	25.7 (11.1)	9.8 (7.7)
Food service	13.7 (2.6)	22.2 (5.8)	13.7 (3.4)	26.7 (8.8)	13.8 (6.9)	14.4 (10.9)	19.3 (6.8)	20.1 (10.3)	11.4 (6.5)	11.8 (7.1)	7.0 (6.4)	19.0 (10.2)
Childcare, including babysitting	1.9 (1.0)	35.9 (6.7)	2.5 (1.6)	34.9 (9.4)	2.6 (3.2)	39.7 (15.2)	0.4 (1.1)	45.5 (12.8)	0.8 (1.9)	18.0 (8.5)	2.0 (3.6)	29.6 (11.9)
Other	13.0 (2.5)	4.0 (2.7)	13.2 (3.4)	1.9 (2.7)	7.1 (5.1)	20.8 (12.6)	18.8 (6.7)	6.3 (6.3)	21.8 (8.4)	6.2 (5.3)	7.6 (6.7)	5.7 (6.0)
Other (e.g., sales)	3.0 (1.3)	3.4 (2.5)	3.1 (1.7)	2.7 (3.2)	2.1 (2.9)	.0 (.0)	1.3 (2.0)	2.5 (4.0)	2.2 (3.0)	.0 (.0)	2.0 (3.6)	.0 (.0)
N	775	335	182	49	57	37	109	63	74	43	41	31

Notes: Standard errors are in parentheses.

Includes youth who were in grades 7 to 11 or who were not assigned to a grade level and who had a job in the previous year. "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

The concentration of students in lower-skill jobs should come as no surprise. High school students, who generally are without well-developed job skills and often desire part-time work and flexible hours, can be expected to gravitate toward food services, lawn mowing, and other such jobs. This pattern is demonstrated using data for two groups of students from the general population, drawn from the National Longitudinal Survey of Youth (NLSY): secondary school students in the general population, and students with selected demographic characteristics similar to those of students with disabilities (see Chapter 1 for details). More than 60% of youth in the general population were employed as laborers or in service occupations, regardless of gender (Table 8-4). At the same time, the occupational distributions of youth with disabilities and the comparison groups were clearly different in important ways, especially among females.

Table 8-4

OCCUPATIONS OF EMPLOYED STUDENTS WITH DISABILITIES AND THOSE IN THE GENERAL POPULATION

	Students with Disabilities		Comparison Population†		General Population of Youth	
Occupation	Males	Females	Males	Females	Males	Females
Percentage of youth working as:						
Clerical workers (e.g., stock clerks, secretaries, postal clerks)	11.2 (2.4)	13.5 (4.7)	7.5 (.7)	24.6 (1.4)	7.3 (.8)	23.4 (1.5)
Craft workers (e.g., apprentices, mechanics)	7.6 (2.0)	.7 (1.2)	6.4 (.7)	.6 (.2)	5.6 (.7)	.4 (.2)
Operatives (e.g., packers, service station attendants)	6.9 (1.9)	2.8 (2.3)	9.5 (.8)	2.2 (.5)	10.2 (.9)	2.0 (.5)
Laborers (e.g., lawn mowing, grounds keepers)	34.5 (3.6)	9.4 (4.1)	31.9 (1.3)	3.9 (.6)	31.6 (1.4)	3.5 (.7)
Service workers						
Janitors and maids	8.2 (2.1)	8.0 (3.8)	11.0 (.9)	6.2 (.8)	9.2 (.9)	5.9 (.8)
Food service	13.7 (2.6)	22.2 (5.8)	18.7 (1.1)	26.8 (1.4)	18.7 (1.2)	25.2 (1.5)
Childcare, including babysitting	1.9 (1.0)	35.9 (6.7)	1.2 (.3)	20.2 (1.3)	1.2 (.3)	23.0 (1.5)
Other	13.0 (2.5)	4.0 (2.7)	3.0 (.5)	4.6 (.7)	3.3 (.5)	4.7 (.7)
Other (e.g., sales)	3.0 (1.3)	3.4 (2.5)	10.7 (.9)	11.0 (1.0)	12.8 (1.0)	11.9 (1.1)
N	775	335	3,012	2,273	3,012	2,273

Note: Standard errors are in parentheses.

† Youth from the general population with demographic characteristics similar to youth with disabilities.

Source: Data for youth with disabilities are from NLTS parent interviews.
Those for the general and comparison populations are from NLSY youth interviews.

Although 60% of youth in the general population were in service or laborer occupations, these proportions exceeded 70% for males with disabilities and reached almost 80% for females with disabilities. In contrast, about 12% of males and females in the general population were in sales or other white-collar jobs, but the comparable rate among youth with disabilities was just 3% (p<.001). Finally, nearly twice as many female students in the general population were working in clerical jobs as were females with disabilities (23% vs. 14%; p<.05). The comparison group with demographic characteristics similar to those of students with disabilities did not differ markedly from the general population, indicating that little of the difference between these youth and students with disabilities related to demographic characteristics.

Hours Worked Per Week

Understanding the demands of school work and knowing the kinds of jobs students held, we would expect part-time work to predominate among students, and it did (Table 8-5). More than half of students with disabilities who worked did so for fewer than 20 hours per week. Only one-quarter worked 35 or more hours per week and hence could be classified as full-time workers; this pattern is fairly uniform across the disability categories, with virtually none of the differences attaining statistical significance.

Although we have seen pronounced differences in employment rates by gender, the hours worked per week by males and females with disabilities were not significantly different.

Comparisons with the general population of youth, using data from the NLSY, show that students with disabilities worked full time with greater frequency than did employed students in the general population (Table 8-6). For example, 10% of male students in the general population worked 35 hours per week or more, compared with 25% of males with disabilities (p<.001). Similar differences in the extent of full-time work existed between young women in the general population and those with disabilities (5% vs. 24%; p<.001). Even when demographic differences between students with disabilities and the general population were accounted for, similar differences were evident. Perhaps the greater emphasis on work among students with disabilities relates to the markedly lower percentage who were college bound; such students might have invested greater time in their jobs, rather than in academic pursuits.

Table 8-5

HOURS WORKED PER WEEK BY EMPLOYED SECONDARY SCHOOL STUDENTS WITH DISABILITIES

	Percentage of Employed Students Working Weekly:			
	1 to 20 hours	21 to 34 hours	35 hours or more	N
Disability category				
All conditions	50.8 (3.4)	24.5 (3.0)	24.7 (3.0)	1,057
Learning disabled	48.9 (4.6)	24.9 (4.0)	26.2 (4.0)	218
Emotionally disturbed	50.8 (6.1)	31.4 (5.7)	17.7 (4.7)	121
Speech impaired	55.7 (7.8)	25.4 (6.8)	18.9 (6.1)	80
Mentally retarded	59.3 (6.8)	15.4 (5.0)	25.3 (6.0)	92
Visually impaired	47.3 (8.6)	18.5 (6.7)	34.2 (8.2)	96
Hard of hearing	59.1 (7.1)	25.2 (6.2)	15.7 (5.2)	169
Deaf	45.2 (8.4)	25.2 (7.3)	29.6 (7.6)	122
Orthopedically impaired	72.5 (14.1)	20.5 (12.7)	7.0 (8.0)	54
Other health impaired	52.5 (9.5)	28.5 (8.6)	19.0 (7.5)	65
Multiply handicapped	64.3 (16.6)	19.3 (13.7)	16.4 (12.8)	38
Gender				
Males	50.1 (3.9)	24.8 (3.4)	25.0 (3.4)	741
Females	53.1 (7.2)	23.2 (6.1)	23.7 (6.1)	316

Notes: Standard errors are in parentheses.

Includes youth who had jobs in the previous year other than work-study jobs and who were in grades 7 to 11 or not assigned to a grade level. "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

Table 8-6

HOURS WORKED BY EMPLOYED STUDENTS WITH DISABILITIES AND THOSE IN THE GENERAL POPULATION

	Students with Disabilities		Comparison Population[†]		General Population of Youth	
	Males	Females	Males	Females	Males	Females
Percentage of youth who worked:						
1 to 20 hours per week	50.1 (3.9)	53.1 (7.2)	67.3 (1.3)	76.5 (1.4)	67.1 (1.4)	79.0 (1.4)
21 to 34 hours per week	24.8 (3.4)	23.2 (6.1)	22.7 (1.2)	17.5 (1.2)	23.3 (1.3)	15.9 (1.3)
35 or more hours per week	25.0 (3.4)	23.7 (6.1)	10.1 (.9)	6.0 (.8)	9.5 (.8)	5.1 (.7)
N	741	316	2,932	2,218	2,932	2,218

Note: Standard errors are in parentheses.

[†] Youth from the general population with demographic characteristics similar to youth with disabilities.

Source: Data for youth with disabilities are from NLTS parent interviews. Those for the general and comparison populations are from NLSY youth interviews.

Hourly Wages

Hourly wages are another important indicator of the kinds of jobs students held. Wages of employed students with disabilities typically were at or below the federal minimum wage, as shown in Table 8-7.[*] Overall, 67% of students earned the minimum wage or less. Another 26% earned just above the minimum to $5.00 per hour, and 7% earned more than $5.00 per hour. This pattern generally prevailed across the disability categories. However youth with visual impairments were less likely than youth as a whole to have earned above the minimum (14% vs. 33%; $p<.05$). The range of wages earned by secondary school students, therefore, was narrowly restricted around the federal minimum, regardless of disability classification. The distribution of hourly wages for young men and women somewhat favored men, although the differences were not statistically significant.

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[*] Respondents reported pay by their choice of hourly, weekly, monthly, or annual rates. All responses were converted to hourly wages. Allowing some margin for imprecision, wages of $3.25 or less were categorized as less than the minimum wage, those greater than $3.25 and up to $3.50 were coded as the minimum wage, and those from $3.51 to $5.00 were coded as above the minimum to $5.00. The federal minimum wage at the time of the survey was $3.35 per hour, but some states had minimums that were somewhat higher.

Table 8-7

HOURLY WAGES EARNED BY EMPLOYED SECONDARY SCHOOL STUDENTS WITH DISABILITIES

	Percentage Earning:				
	Less Than Minimum Wage	Minimum Wage	More than Minimum Wage to $5.00	More than $5.00	N
Disability category					
All conditions	29.6	37.7	25.7	6.9	1,027
	(3.2)	(3.4)	(3.0)	(1.8)	
Learning disabled	28.7	37.1	26.6	7.6	220
	(4.1)	(4.4)	(4.0)	(2.4)	
Emotionally disturbed	28.9	41.6	23.5	6.1	122
	(5.6)	(6.1)	(5.2)	(2.9)	
Speech impaired	35.4	33.4	29.0	2.2	79
	(7.5)	(7.4)	(7.1)	(2.3)	
Mentally retarded	33.8	37.3	23.8	5.1	82
	(6.9)	(7.0)	(6.2)	(3.2)	
Visually impaired	34.4	51.5	10.1	4.0	90
	(8.6)	(9.0)	(5.4)	(3.5)	
Hard of hearing	36.1	38.2	21.4	4.4	167
	(7.0)	(7.1)	(6.0)	(3.0)	
Deaf	16.3	48.9	22.0	12.8	116
	(6.4)	(8.7)	(7.2)	(5.8)	
Orthopedically impaired	43.3	37.3	15.4	3.9	54
	(15.6)	(15.2)	(11.4)	(6.1)	
Other health impaired	30.0	47.8	21.4	.9	64
	(8.8)	(9.6)	(7.9)	(1.8)	
Multiply handicapped	40.6	28.3	20.4	10.7	33
	(15.2)	(14.0)	(12.5)	(9.6)	
Gender					
Male	26.8	37.7	27.9	7.6	720
	(3.5)	(3.8)	(3.5)	(2.1)	
Female	39.1	37.8	18.7	4.4	307
	(7.0)	(7.0)	(5.6)	(3.0)	

Notes: Standard errors are in parentheses.

Includes youth who had jobs in the previous year other than work-study jobs and who were in grades 7 to 11 or not assigned to a grade level. "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

When secondary school students with disabilities are compared with those in the general population, we find that employed students as a whole also worked at low wages. Because data on wages for youth in the general population were collected several years before the NLTS, actual wages for the groups of students are difficult to compare.[*] However, when using the federal minimum wage as a benchmark, we see that about 65% of males and 78% of females earned the minimum wage or less, regardless of whether they had a disability (Table 8-8). By this standard, youth with disabilities appear to have been at no particular disadvantage.

The Role of Schools in Facilitating a Successful Transition

Early work experience, whether or not as part of a work-study program, is one mechanism by which students with disabilities may enhance their prospects for a smooth transition to employment when they leave secondary school. But more may be required to ensure that youth with special needs can establish a foothold in the labor market and embark on successful

Table 8-8

HOURLY WAGES EARNED BY EMPLOYED STUDENTS WITH DISABILITIES AND THOSE IN THE GENERAL POPULATION

	Students Earning Minimum Wage or Less			
	Males		Females	
Populations of Students	%	N	%	N
Students with disabilities	64.5 (3.8)	719	76.9 (6.0)	307
Students in the general population with demographic characteristics similar to youth with disabilities	66.2 (1.4)	2,674	77.9 (1.4)	2,053
General population of students	65.4 (1.5)	2,674	77.8 (1.5)	2,053

Note: Standard errors are in parentheses.

Source: NLTS data are from parent interviews. Data for the comparison populations are from NLSY youth interviews.

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[*] Although a comparison of the full wage distributions would be desirable, meaningful inferences would be difficult. The NLSY was administered in the spring of the 1978-1983 survey years, whereas the NLTS was administered in the summer/fall of 1987. Comparisons of employment rates, hours worked, and occupations are probably little affected by the time lag because period effects are assumed to be fairly small for these items. But because of changes in the minimum wage and in the real value of the dollar (due to inflation) from 1979 to 1987, period effects for wages are pronounced and greatly complicate their comparison. Inflating the wages of NLSY youth to constant dollars using the Consumer Price Index (CPI) might fairly well represent the earning power of wages in 1987 dollars, but it may be a poor estimate of what youth could have expected to earn had they left high school in later years. Hence, we have not adjusted wages for inflation, but concentrate instead on wages compared with the benchmark of the minimum wage.

careers. We would expect youth who make the most successful transitions to employment after high school to be those with specialized job skills who find jobs that require and reward those skills. Therefore, the process of developing a youth's interest and abilities and optimally matching them to available job opportunities could be critically important to their transition success. For example, Gottfredson, Finucci, and Childs (1984) found that youth with dyslexia were underrepresented in professional occupations, where reading skills typically are important, but did quite well in high-paying sales and managerial positions, where the ability to work with people is more important.

Schools can play a key role in developing students' skills and matching them to available jobs. The essential components of their task, as identified by Hasazi, Salembier, and Finck (1983) and Wehman, Kregel, and Barcus (1985), include:

- *Assessment and counseling*, including identifying the aptitudes and vocational interests of youth and appraising job opportunities. An optimal matching of a student's interests and abilities with the local labor market's needs is of critical importance for youth with disabilities (e.g., Stodden and Ianacone, 1981).
- *Training.* Generalized work skills (i.e., prevocational preparation) and specialized job skills in the identified area of interest must be developed, using both classroom training and community-based work experience.
- *Job placement assistance.* Available job opportunities must be identified and the youth's job search skills must be honed.
- *Transition services.* Forging linkages with other social service agencies, developing individualized transition plans, and providing follow-up assistance, as needed, can also be critical (e.g., Albright et al., 1981; Hasazi, 1985).

The NLTS includes data on the extent to which schools made these services available to secondary students in special education. As part of the Survey of Secondary Special Education Programs, the NLTS asked school staff to identify which of various services their school routinely provided to secondary special education students. These results, presented in Chapter 3, show that more than 90% of youth were in schools that routinely provided job counseling and assessment; job readiness training was available to 85% of students; job-specific skills training was available to 70%; job placement services were available to two-thirds; and nearly as many had access to work experience programs. Although these figures cannot be taken to mean that these same proportions of students actually received these services, they were available to secondary special education students, according to school reports.

Confirming evidence that schools were providing many youth with vocational preparation is available from students' school records. Chapter 3 presents relevant data in more detail, but in the context of understanding the employment experiences of youth with disabilities, selected results are summarized here. Figure 8-3 shows that from one-quarter to more than two-thirds of students took at least one occupationally oriented vocational education course in their most recent year in secondary school. Some students (15%) received only more general kinds of vocational preparation, including career exploration and prevocational training (see Chapter 3 for a fuller discussion of the vocational and academic courses youth took while in school).

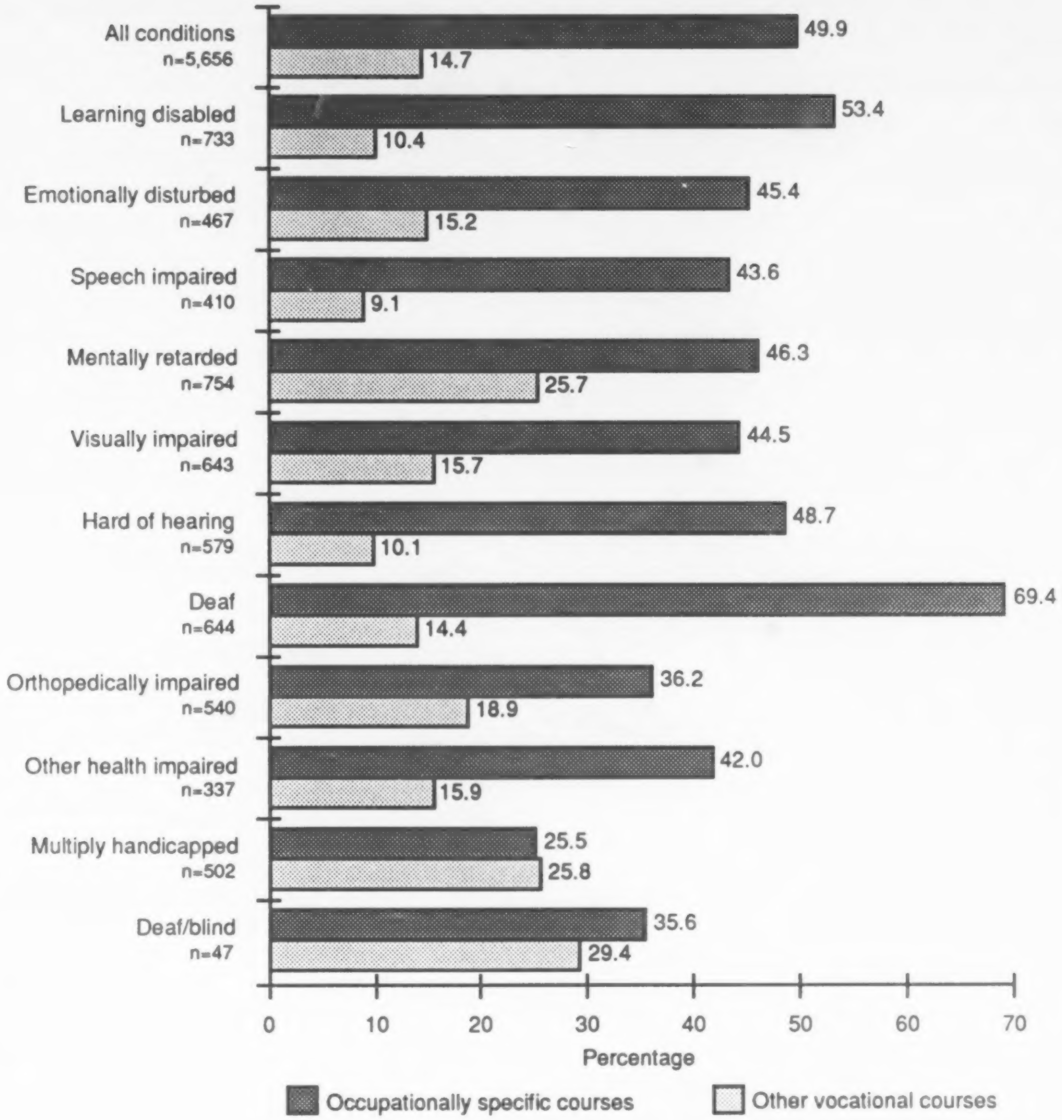

FIGURE 8-3 YOUTH WHO TOOK SECONDARY VOCATIONAL EDUCATION COURSES

Source: Students' school records from their most recent school year.

In sum, moderate to high rates of work-study and other paid employment and the provision of vocational education and special services by schools suggest that many students with disabilities were gaining employment experiences and vocational preparation that might help them to compete in the labor market after high school. Whether such experiences related to postschool employment success remains to be assessed in the section to follow.

The Employment Experiences of Youth After Secondary School

Research on the school-to-work transition for youth in general convinces us that the first few years after youth leave school often are critical determinants of subsequent employment success. For example, prolonged periods of joblessness during this period may give rise to "scarring effects" that impair a youth's subsequent abilities to compete for jobs (e.g., Lynch, 1989; Ellwood, 1982). Of course, some unemployment during the first few years after high school is an inevitable part of job search for young workers who may have little information about job opportunities and undeveloped job search skills. Nonetheless, extensive nonemployment represents lost opportunity for investment in job skills at a time when investment is normally quite high. Moreover, jobless youth may develop weak labor force attachments, lose out in the competition for choice entry-level jobs, or come to be labeled by employers as unreliable.

Not only the *extent* but the *nature* of employment has been shown to be important in determining the subsequent labor market success of youth in the general population. For example, the occupational status and hourly wage of the first job held after leaving school have been shown to be significantly related to occupational status and earnings at mid-career (e.g., Duncan, Featherman, and Duncan, 1972; Blau and Duncan, 1967). These relationships can be understood as a function of the linkages that exist between jobs in the labor market (Doeringer and Piore, 1976).

Whether these relationships hold for youth with disabilities has yet to be firmly established, but there is every reason to suppose that they do. For example, Hasazi, Gordon, and Roe (1985) found that there was relatively little change in employment status over a two-year period in a sample of youth with disabilities; that is, those not competitively employed one year were unlikely to be employed the next year, while those employed in the first year were overwhelmingly likely to be employed the next year. Thus, youth with disabilities who have jobs early in their lives and can hone their work skills and demonstrate their reliability to employers may have a greater chance for subsequent employment success.

In light of the probable criticalness of early employment, documenting and understanding the transition experiences of youth with disabilities is especially important. The next section describes the extent of employment of youth with disabilities who had recently left high school and compares employment rates with those of youth in the general population. By virtue of the NLTS sample design, no youth with disabilities had been out of high school more than 2 years; thus, we are focusing on the period just after youth left high school.

Employment Rates in the Early Post-High-School Years

Parents of youth with disabilities were asked whether their son or daughter "now [does] any work for which he/she gets paid, other than work around the house" and, if so, whether this employment was "at a sheltered workshop" and, if not, whether youth had "done any work for pay in the past 12 months, other than work around the house." Responses to these questions are shown in Figure 8-4 for youth who had left secondary school by the summer/fall of 1987. Almost half (46%) of parents reported that their son or daughter currently had a paid job.[*] Although the employment rate varied substantially by disability category, only among those with learning disabilities were more than half of youth competitively employed. From their employment rate of about 58%, the rate fell steadily across the remaining categories to less than 15% for youth with multiple handicaps (8%) or who were classified as deaf/blind (14%). Employment rates did not vary between youth who had been out of secondary school less than 1 year and those out of school 1 to 2 years.

NLTS employment rates are comparable to those reported by other researchers for youth in corresponding disability categories (e.g., Hasazi, Gordon, and Roe, 1985), but how do they compare with employment among youth as a whole? Past research on the transition to employment for noncollege youth in the general population has found that the transition from school to work often is a chaotic period characterized by frequent spells of joblessness, weak labor force attachments, and seemingly directionless job hopping (e.g., Freedman, 1969; Osterman, 1980), so much so that some have referred to the few years after youth leave high school as a "floundering period" (as cited in Osterman, 1980) or a "trial work stage" (Form and Miller, 1949). However, despite the difficulty youth in general have in finding sustained employment, we find that youth with disabilities were even less likely to have been employed.

Employment rates computed using data from the NLSY show that about 61% of youth aged 15 to 20 in the general population were employed during the week they were interviewed, 1 to 2 years after they left school, compared with 49% of out-of-school youth with disabilities of those ages ($p<.001$). Even when differences in ethnicity, gender, and head of household's education were eliminated, the demographically similar comparison group of youth still was employed at a significantly higher rate than youth with disabilities (58%; $p<.01$). Among youth with disabilities, only those classified as learning disabled were employed at about this frequency, although youth in several other categories did not lag far behind, including those classified as emotionally disturbed, speech impaired, and hard of hearing.

Referring again to Figure 8-4, we also see the extent of paid employment in sheltered workshops. Almost 1 in 10 youth (8% to 9%) in some disability groups were employed in these settings, but the prevalence was only about 4% overall and was incidental for youth who were learning disabled (1%) or emotionally disturbed (2%). However, because the parent interview elicited information on paid sheltered employment only, these estimates should be viewed as lower bounds on the full incidence of sheltered employment.

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[*] Some youth were not currently employed because they were attending postsecondary schools. However, employment rates actually were substantially higher among postsecondary students (55% vs. 46%). Moreover, employment rates (and the rank ordering of disability categories by employment rates) remain virtually unchanged when the analysis is restricted to those who were not in postsecondary school. Nonetheless, in fully appraising how youth in various disability categories fare once they leave high school, it is important to consider the prevalence of both employment *and* postsecondary training, and the overlap between the two (see Chapter 10).

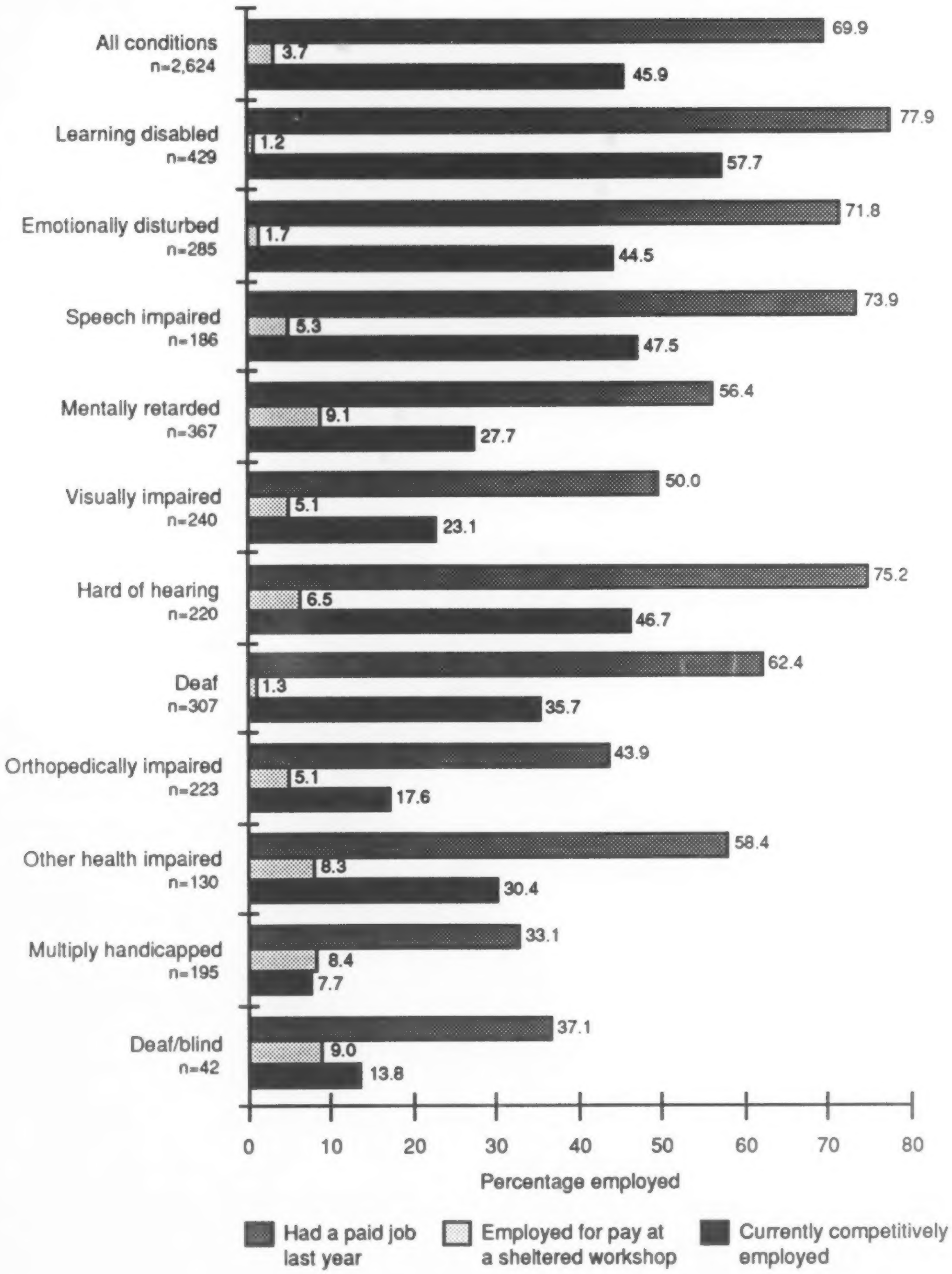

FIGURE 8-4 EMPLOYMENT RATES OF OUT-OF-SCHOOL YOUTH WITH DISABILITIES

Figure 8-4 further shows the extent to which youth had a paid job at any time in the previous year. In nearly all disability categories, at least 20 percentage points more youth were employed sometime during the year than were employed at the time of the interview. Thus, many youth had a job sometime during or shortly after high school, but left it, either voluntarily or involuntarily, and were jobless as of the interview date. This result suggests that there was considerable instability in employment relationships during this school-to-work transition period.

Who Had Jobs?

The conceptual framework of transition experiences presented in Chapter 1 suggested a number of characteristics of youth and their households, communities, and school experiences that are expected to be related to their employment probabilities and the characteristics of their jobs. The hypothesized relationships embedded in that framework draw from the extensive literature on the youth labor market and the insights of special education researchers and practitioners regarding the experiences of youth with disabilities. Although much about the transition to employment for youth with disabilities remains unclear, the literature on the transition to employment for the general population of youth suggests that a number of factors are important. Figure 8-5 highlights the relationships we explore further in this section. Factors expected to influence the rate at which youth out of high school had found jobs include individual (i.e., disability and demographic), household, and community characteristics (Box A); other youth outcomes (Boxes D and E), including high school completion; and characteristics of students' schools and school programs while in secondary school (Boxes B and C). Findings from the NLTS regarding the relationships of these factors to employment of out-of-school youth are presented below.

Disability Characteristics

Differences in employment rates for youth in different disability categories were pronounced, as we have discussed. But we also have learned from earlier chapters of the striking heterogeneity in the severity of disability within categories. To explore further the nature of the relationship between youths' disability and employment, we report in Table 8-9 employment rates for youth classified as low on *either* the functional ability or self-care scales and for those who were scored low on *neither* of them (see Appendix C for definitions of these scales and Chapter 2 for their distributions).

Results are dramatic, both for youth as a whole and for youth in the several disability categories for which estimates for lower- and higher-ability youth were possible. In each case, lower-ability youth had rates of current competitive employment that were below 10%—several times lower than the rates of higher-ability youth in the same categories. For example, lower-ability youth classified as visually impaired were reported to have an employment rate of 4%, one-seventh the rate of 28% reported by parents of higher-ability youth also classified as visually impaired. This finding affirms the implication from previous chapters that the variability of youth characteristics and outcomes within disability categories is substantial.

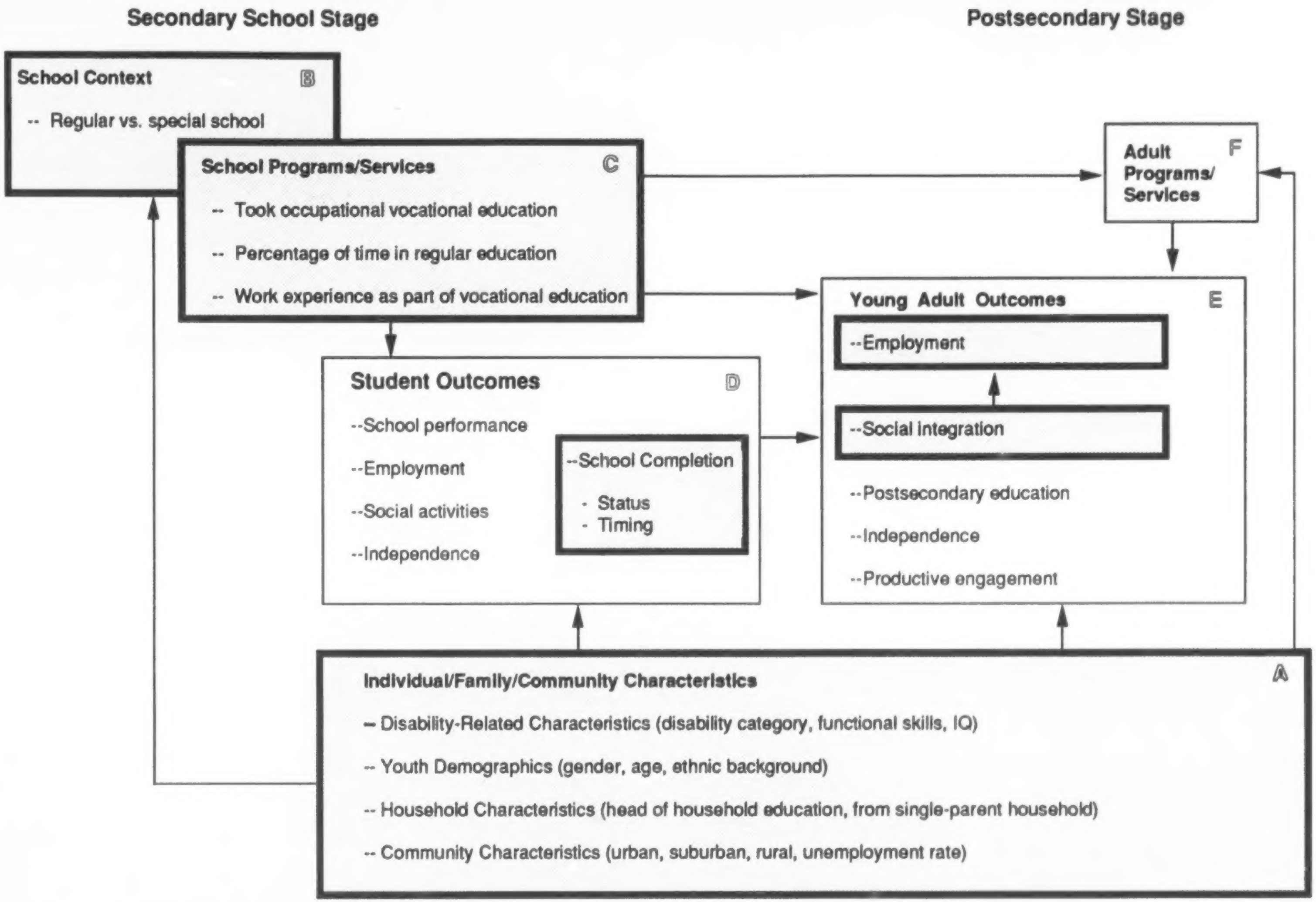
Secondary School Stage
Postsecondary Stage
School Context B
-- Regular vs. special school
School Programs/Services C
-- Took occupational vocational education
-- Percentage of time in regular education
-- Work experience as part of vocational education
Adult Programs/ Services F
Young Adult Outcomes E
--Employment
--Social integration
--Postsecondary education
--Independence
--Productive engagement
Student Outcomes D
--School performance
--Employment
--Social activities
--Independence
--School Completion
- Status
- Timing
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background)
-- Household Characteristics (head of household education, from single-parent household)
-- Community Characteristics (urban, suburban, rural, unemployment rate)

FIGURE 8-5 HYPOTHESIZED RELATIONSHIPS OF YOUTH, HOUSEHOLD, COMMUNITY, AND SCHOOL FACTORS TO POST SCHOOL EMPLOYMENT

Table 8-9

VARIATIONS IN EMPLOYMENT RATES BY FUNCTIONAL ABILITIES FOR OUT-OF-SCHOOL YOUTH

	Currently Competitively Employed					
	Lower Ability			Higher Ability		
	%	S.E.	N	%	S.E.	N
All conditions	7.1	2.9	358	49.6	2.5	2,098
Mentally retarded	6.8	3.9	81	34.1	4.0	262
Visually impaired	4.2	5.8	46	28.2	5.4	186
Multiply handicapped	2.2	2.8	91	18.9	10.1	62

Note: Youth classified as lower ability had scores of 3 to 7 on the self-care ability scale or scores of 4 to 8 on the functional mental skills scale. See Appendix C for definitions of these scales and Chapter 2 for a discussion of their distributions. "All conditions" includes youth in all categories whose parents were asked self-care items (mentally retarded, visually impaired, deaf, orthopedically impaired, other health impaired, multiply handicapped and deaf/blind). Data are reported only for categories with at least 30 cases with both higher and lower ability.

Source: Parent interviews.

Individual and Household Characteristics

Much of what is known about the important relationships between postschool employment and selected individual demographics comes from research on youth in the general population. We might reasonably wonder whether similar factors are important for youth with disabilities. Our expectations are mixed. On the one hand, although youth with disabilities vary greatly in their skills and capabilities, their opportunities for competitive employment may be sharply curtailed by their disability, regardless of their other attributes. Thus, ethnicity, gender, education, and family background, so important as correlates of employment in the general population, may be much less important for them.

On the other hand, youth with disabilities attempt to compete in the labor market with obstacles caused by their special needs and the discriminatory behavior of employers. Other advantages or disadvantages they bring to the market may make all the difference in determining whether they can make a successful transition to competitive employment. For this reason, other attributes may be just as important for youth with disabilities as for youth in the general population, or even more important. Thus, to have a disability may make it hard to find a job, but to be poor or black and have a disability may make it doubly difficult. Conversely, higher-socioeconomic-status (SES) parents may instill greater motivation *and* have the extra income and "connections" to procure the special services and assistance their children with disabilities need to succeed. Below we consider the relationships of youths' individual and household characteristics to their employment.

Gender—As we saw in the first part of this chapter, there were moderate gender differences in employment rates among secondary school students with disabilities. Table 8-10 shows that they were more pronounced for youth who had left school. Overall, 53% of males were currently competitively employed, compared with 30% of females (p<.01). A higher rate of employment was evident for young men in nearly all disability categories, except for those with visual, orthopedic, or multiple impairments; more modest (i.e., under 10 percentage points) and generally nonsignificant gender differences were recorded for these youth.

Table 8-10

EMPLOYMENT RATES FOR MALE AND FEMALE OUT-OF-SCHOOL YOUTH WITH DISABILITIES

	Currently Competitively Employed					
	Males			Females		
Disability Category	%	S.E.	N	%	S.E.	N
All conditions	53.4	2.7	1,619	29.6	3.6	1,005
Learning disabled	63.5	4.0	335	39.6	7.8	94
Emotionally disturbed	52.1	5.0	215	26.0	8.0	70
Speech impaired	53.5	7.1	118	36.1	10.0	68
Mentally retarded	32.9	4.5	203	20.9	4.3	164
Visually impaired	26.5	5.7	137	19.4	7.2	103
Hard of hearing	60.9	8.0	111	34.0	8.3	109
Deaf	40.5	6.3	167	28.9	5.8	140
Orthopedically impaired	16.9	5.8	119	18.3	7.3	104
Other health impaired	35.2	9.1	68	26.2	6.6	62
Multiply handicapped	8.3	4.8	124	6.4	5.6	71

Note: "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

Data on the employment rates of males and females in the general population, computed from the NLSY, can provide a useful benchmark for calibrating employment experiences of youth with disabilities. Table 8-11 shows that the difference in employment rates between male and female youth in the general population was much more modest than it was between males and females with disabilities. In the general population, the difference was about 12 percentage points, while a difference of more than 20 percentage points prevailed among youth with disabilities. These comparisons also make clear that, although males with disabilities as a whole were employed at a rate significantly below that of the general population (53% vs. 68%; p<.001), males in some disability categories, including those classified as learning disabled, hard of hearing, and, to a lesser extent, emotionally disturbed or speech impaired, recorded employment rates that were only modestly different from males in the general population (refer to Figure 8-4).

In contrast, females with disabilities consistently lagged behind their peers in the general population. Overall, young women with disabilities were about 20 percentage points less likely to be employed than their peers in the general population (30% vs. 54%; $p<.001$), and even females in the disability group with the highest employment rate (i.e., those classified as learning disabled) lagged behind by about 10 percentage points.

Thus, despite the difficulties that youth in the general population had in making the transition to employment, females with disabilities and males in at least some disability categories appear to have fared even less well. Moreover, as Table 8-11 suggests, virtually none of the differences appear to be attributable to the generally lower SES of youth with disabilities; weighting the NLSY to match NLTS demographics closed virtually none of the gap between the groups. However, noncomparabilities between the two surveys could account for some of the remaining difference. For example, parents were the source of information about youth with disabilities, while youth were respondents in the NLSY survey; and parents—at least parents of youth in the general population—tend to understate the labor force activity of their teenage children (Freeman and Medoff, 1982). Nonetheless, these results suggest the generally greater difficulty that youth with disabilities, especially young women, experienced in establishing a toehold in the labor market.

Table 8-11

EMPLOYMENT RATES FOR OUT-OF-SCHOOL YOUTH WITH DISABILITIES AND YOUTH IN THE GENERAL POPULATION

	Currently Competitively Employed		
Gender	%	S.E.	N
Males			
Youth with disabilities	53.4	2.7	1,619
Comparison population†	64.5	1.3	2,715
General population	68.2	1.4	2,715
Females			
Youth with disabilities	29.6	3.6	1,005
Comparison population†	47.7	1.4	2,597
General population of youth	53.7	1.6	2,597

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† Youth from the general population with demographic characteristics similar to youth with disabilities.

Source: Data for youth with disabilities are from parent interviews. Those for the general population are from NLSY youth interviews.

Age and Length of Time Since Leaving Secondary School—One might expect that older youth and those out of high school longer might have greater success in establishing themselves in the working world. However, we found no significant difference between youth who had been out of school less than 1 year and those out of school 1 to 2 years (47% and 49%). Table 8-12 shows that the bivariate relationship between current employment and age is ambiguous. Those who were 19 or 20 were somewhat more likely to have been employed than those younger (52% vs. 47%), but youth ages 21 or older were significantly less likely to be employed (36%). This finding points up again the confounding interrelationship between age and severity of disability. Youth 21 or older in 1987 were 19 or older and still in secondary school when selected for the NLTS sample. These youth generally were more severely impaired than youth leaving school at younger ages. However, when we examine employment rates for youth of various ages who were in the same disability category, the lower employment of older youth remains evident.

Table 8-12

VARIATIONS IN EMPLOYMENT RATES OF OUT-OF-SCHOOL YOUTH BY AGE

	Currently Competitively Employed at Age:					
	16 to 18		19 or 20		21 or older	
Disability Category	%	N	%	N	%	N
All conditions	47.0 (4.8)	485	52.3 (3.2)	1,093	35.9 (3.0)	898
Learning disabled	55.8 (8.0)	72	59.6 (4.6)	197	64.6 (5.2)	154
Emotionally disturbed	48.0 (7.4)	90	49.6 (6.6)	108	39.9 (9.2)	66
Speech impaired	46.5 (11.4)	50	55.3 (6.9)	95	25.5 (20.4)	35
Mentally retarded	26.2 (7.6)	56	36.4 (5.6)	130	22.7 (4.4)	156
Visually impaired	30.9 (12.1)	43	25.9 (6.5)	130	9.9 (6.4)	60
Hard of hearing	49.5 (12.2)	47	54.1 (8.5)	116	35.7 (11.1)	52
Deaf	—	29	41.6 (7.0)	128	30.7 (6.2)	144
Orthopedically impaired	30.0 (14.8)	42	15.8 (5.5)	109	8.3 (5.0)	59
Other health impaired	45.1 (12.8)	31	31.6 (9.6)	51	8.7 (6.8)	45

Notes: "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

Ethnic Background—NLTS data reveal that, in a bivariate relationship, minorities with disabilities were significantly less likely than nonminorities to have had a competitive job. More than half of white youth (52%) who had been out of secondary school up to 2 years were currently employed, compared with 30% of black youth (p<.001), 44% of Hispanic youth (not significant), and 30% of youth with other ethnic backgrounds (p<.05). In multivariate analyses reported later, the difference between minority and nonminority youth fell just short of statistical significance when other factors, including socioeconomic status, were held constant.

Household Characteristics—Youth from households with characteristics of lower socioeconomic status generally were less likely to be employed than others (Table 8-13). For example, those from households with an annual income of less than $12,000 had a significantly lower rate of employment (32%) than youth from households with higher incomes (55% and 58%; p<.001). Although differences across head of household's education were not statistically significant, employment was significantly lower among youth from single-parent households (38%) than from two-parent families (55%; p<.001).

Table 8-13

VARIATIONS IN EMPLOYMENT RATES OF OUT-OF-SCHOOL YOUTH BY HOUSEHOLD AND COMMUNITY CHARACTERISTICS

	Currently Competitively Employed		
	%	S.E.	N
Household Characteristics			
Annual household income			
Less than $12,000	32.4	4.2	548
$12,000 to $25,000	54.6	4.5	639
More than $25,000	57.6	3.7	958
Head of household education			
Less than high school	44.0	3.7	836
High school graduate	51.1	3.9	829
Some college	49.8	6.3	390
College graduate or more	55.2	6.7	340
Youth was from:			
Single-parent household	38.0	3.8	812
Two-parent household	54.7	2.9	1,588
Community Characteristics			
Attended school in:			
Urban area	37.9	4.6	705
Suburban area	62.0	4.1	642
Rural area	48.3	4.3	387
Local unemployment rate was:			
6% or less	56.2	4.0	791
6.1% to 8%	45.6	4.1	878
More than 8%	42.8	3.7	807

Source: Parent interviews.

Community Residence—Youth in suburban areas were significantly more likely to have been employed (62%) than youth in either urban (38%; p<.001) or rural areas (48%; p<.05). Further, the state of the local economy is more important for minority and marginal workers than for whites (e.g., Hodge, 1973). Table 8-13 shows that youth in low-unemployment areas were significantly more likely to be employed than those in high-unemployment areas (56% vs. 43%; p<.05)

Other Youth Outcomes

Secondary School Completion—The conceptual framework depicted earlier in Figure 8-5 suggests that a further important influence on postschool employment is the extent of youths' education (Box D). A large body of literature has documented that years of education completed is an important determinant of an individual's socioeconomic attainments, although whether its importance is due primarily to resulting productivity differences between workers or to employment criteria used by employers that are unrelated to productivity is still a matter of debate (Becker, 1975; Berg, 1971). For youth recently out of high school, whether they left high school by graduating, dropping out, or exceeding the school age limit is a key indicator of educational attainment.

As Table 8-14 shows, high school graduates with disabilities recorded an employment rate of 55% vs. 40% for dropouts and 29% for those who aged out. The advantage recorded by high school graduates is pervasive for youth within each disability category. These results attest to the importance of high school completion for youth with disabilities, as for youth in the general population (e.g., Freeman and Wise, 1982).

Social Integration—It has been suggested that one reason some special education exiters have difficulty finding and keeping jobs is their sometimes impaired social skills and maladaptive behaviors (e.g., Brown et al., 1983; Stodden and Ianacone, 1981). Accordingly, youth who show evidence of higher levels of social integration and adjustment are expected to fare better in the labor market. The results in Table 8-15 do not provide strong confirmation of these expectations. On the one hand, youth who were socially isolated, reportedly seeing friends outside of work or school less often than weekly, were less likely to be employed (27%) than youth who saw friends more often (e.g., 49% of those who saw friends 4 or 5 days a week; p<.01). However, there were no significant differences between youth who saw friends once a week and those who socialized more often. There also were no significant differences between youth who had been affiliated with a school or social group in the previous year and those who had not.

Table 8-14

VARIATIONS IN EMPLOYMENT RATES BY MODES OF SCHOOL LEAVING

School Completion Status	Currently Competitively Employed		
	%	S.E.	N
All conditions			
Graduated	55.0	2.9	1,511
Dropped out/expelled	39.3	4.5	540
Aged out	28.6	4.0	453
Learning disabled			
Graduated	64.0	4.4	262
Dropped out/expelled	47.7	7.3	109
Aged out	60.2	8.8	56
Emotionally disturbed			
Graduated	58.9	6.2	133
Dropped out/expelled	38.9	7.1	115
Aged out	—	—	
Speech impaired			
Graduated	60.4	6.4	116
Dropped out/expelled	37.9	12.4	43
Aged out	—	—	
Mentally retarded			
Graduated	35.7	4.8	178
Dropped out/expelled	23.9	6.6	77
Aged out	20.7	5.6	93
Visually impaired			
Graduated	28.4	5.9	172
Dropped out/expelled	—	—	
Aged out	10.1	8.7	37
Hard of hearing			
Graduated	58.0	7.2	156
Dropped out/expelled	19.0	11.1	38
Aged out	—	—	
Deaf			
Graduated	40.3	5.3	217
Dropped out/expelled	—	—	
Aged out	35.2	10.4	52
Orthopedically impaired			
Graduated	21.7	6.3	148
Dropped out/expelled	6.7	5.9	31
Aged out	—	—	
Other health impaired			
Graduated	36.1	8.7	70
Dropped out/expelled	25.9	12.1	32
Aged out	—	—	
Multiply handicapped			
Graduated	25.1	11.0	42
Dropped out/expelled	15.2	12.0	37
Aged out	1.1	2.1	70

Notes: "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases.

— = Too few cases.

Source: Parent interviews.

Table 8-15

VARIATIONS IN EMPLOYMENT RATES OF OUT-OF-SCHOOL YOUTH BY LEVEL OF SOCIAL INTEGRATION

	Currently Competitively Employed		
Level of Social Integration	%	S.E.	N
Youth saw friends:			
Less than once a week	26.9	7.0	362
Once a week	37.8	6.4	342
2 or 3 days a week	51.3	4.5	658
4 or 5 days a week	48.8	6.2	337
6 or 7 days a week	55.2	4.2	623
Youth belonged to a school or community group in the previous year			
Yes	50.9	4.4	766
No	47.4	2.8	1,639

Source: Parent interviews.

School Factors

Boxes B and C in Figure 8-5 suggest that several characteristics of the schools and programs youth experienced as secondary school students relate to their success in making the transition to employment. The following characteristics are considered:

- *Enrollment in vocational education.* Among non-college-goers, youth who took vocational education while in high school might be expected to have more readily marketable skills in the immediate postschool period. Although some research suggests that the effects of vocational curriculum are weak (Daymont and Rumberger, 1982), others contend that vocational education is important for the transition experiences of youth with disabilities (e.g., Hasazi, Gordon, and Roe, 1985). Table 8-16 confirms this latter view. More than half of youth (51%) who took at least one course in vocational education in their last year in secondary school were competitively employed, compared with 38% of those who did not take such courses (p<.01). The advantage favoring those who took vocational education was evident for youth in each of the disability categories, although small cell sizes mean that these differences rarely attained statistical significance. For example, 63% of vocational education students with learning disabilities were employed, compared with 48% of those with learning disabilities who did not take vocational education. Similarly, 40% of youth with health impairments who had been vocational students were employed, compared with 23% of youth who had not taken vocational education in their most recent school year.
- *Work experience included in vocational instruction.* Special education practitioners are convinced that adequate vocational preparation is important in facilitating a smooth transition to employment for youth with disabilities (e.g., Wehman, Kregel, and Barcus, 1985; Hasazi, Salembier, and Finck, 1983). Work experience as part of vocational instruction, in particular, is thought to be instrumental. We see evidence confirming this view in Table 8-16. Those who had had work experience as part of secondary school

vocational education were significantly more likely to have had a competitive job than those without such experience (62% vs. 45%; p<.05).

- *Extent of mainstreaming.* One goal of mainstreaming youth with disabilities into regular education classes is to facilitate their integration into the larger social system, thereby improving their feelings of self-worth and competency. Further, youth who were mainstreamed for a greater proportion of their school day generally were less severely disabled than students in more segregated settings (see Chapter 3). Hence, mainstreamed youth might be expected to have more favorable labor market outcomes. On the other hand, Chapter 4 has suggested that mainstreamed youth had lower academic achievement, other things being equal; therefore negative effects of this variable on employment might emerge. In bivariate analysis, youth who spent a greater percentage of their instructional time in mainstreamed classes in their last year in secondary school were significantly more likely to have found competitive employment after high school (Table 8-16). For example, 45% of those who spent between one-third and two-thirds of their class time in regular education were employed, compared with 67% of youth who had been fully mainstreamed (p<.05). However, no significant independent relationship was revealed when other factors were controlled in multivariate

Table 8-16

VARIATIONS IN EMPLOYMENT RATES OF OUT-OF-SCHOOL YOUTH BY SCHOOL PROGRAM CHARACTERISTICS

	Currently Competitively Employed		
Program Characteristics	%	S.E.	N
Youth was enrolled in vocational education in the last secondary school year			
Yes	50.7	3.1	1,340
No	38.0	3.7	900
Youth had work experience as part of secondary vocational education			
Yes	62.2	7.5	177
No	45.2	2.6	1,886
Percentage of instructional time spent in regular education classes			
0% to 33%	34.1	4.3	677
34% to 67%	44.6	7.1	200
68% to 99%	61.3	5.8	273
100%	66.6	6.8	308
Youth's secondary school was a:			
Regular school	51.3	2.7	1,497
Special school	19.4	4.6	529

Source: Employment rates are from parent interviews. The type of secondary school is taken from the Survey of Secondary Special Education Programs. Data on time spent in regular education classes are taken from students' school records. Vocational education enrollment is compiled from students' school records or parent interviews (see Appendix C).

analyses, discussed in the following section, suggesting that differences by level of integration in regular education were more related to disability differences than to job placement.

- *Youth attended a special school for students with disabilities.* Table 8-16 demonstrates that youth who had attended special secondary schools were significantly less likely than those who had attended regular secondary schools to have had a competitive job in the early years after high school (19% vs. 51%; $p<.001$). However, the disabilities represented by these two student populations were greatly different in ways that would influence their abilities to find jobs (see Chapter 3). Nonetheless, even within disability categories, special school students were less likely to have been competitively employed. For example, 35% of special school students classified as deaf were employed, compared with 42% of regular school students classified as deaf. Similar percentages for students with visual impairments were 14% vs. 29%. In multivariate analyses reported below, special school enrollment did not have a significant independent relationship to employment.

A Multivariate Analysis of Employment

The preceding several tables have demonstrated what theory and previous research would lead us to expect: that a number of characteristics of youth and their experiences related to their employment probabilities. Because these factors are themselves interrelated, crosstabulations of the kinds presented do not identify the unique, independent relationships between each factor and employment. In this section, we report findings from multivariate analyses of employment to sort out these multiple impacts and identify the unique effect of each factor, holding constant other factors specified in the analyses.

The hypothesized relationships of background and school-related experiences to employment were displayed in Figure 8-5. The arrows between the components of that figure actually represent a series of effects, one for each of the independent variables included in each box. As this figure suggests, each of these predictor variables is expected to have unique and identifiable *direct* impacts on employment outcomes (indicated by the arrows from boxes A, B, C, and D to Box E, and within E, arrows directed to the dependent variable, employment). Additionally, background and disability attributes of youth are expected to have *indirect* effects on employment because they are related to school attainments and experiences, as indicated by the arrows from Box A to Boxes B, C, and D. (Chapters 4 and 5 have documented these relationships in detail.)

For example, youth from higher-SES households may be more successful in finding jobs partly because SES has direct effects on employment—high-SES youth may benefit from the personal networks of their parents, they may have greater motivation for work or better job search skills, and so on. But SES may have indirect effects as well, if youth from higher-SES households are more likely to complete high school and receive more enriched school services—experiences that themselves may have an impact on employment outcomes. In this way, high school experiences are intervening variables because they mediate some of the impact of family background and other factors on employment.

Our multivariate analyses of employment focus on whether youth were currently competitively employed. Analyses include youth who were out of secondary school, at least 16 years old, and not institutionalized. Independent variables in the analyses include those discussed above: disability characteristics; individual, household, and community characteristics; other youth outcomes; and school factors.* Analyses were performed first excluding and then including school factors. A comparison of the coefficients between these two analyses enables us to determine whether the background and ability measures affect employment outcomes primarily directly or indirectly through the intervening school factors.

Results from an analysis of employment with only characteristics of the youth and his/her household and community are found in Table 8-17; these can be interpreted as the total effects of these factors on employment, including their direct effects and indirect effects that may operate through the educational variables included subsequently. The first column of the table presents the logit coefficients. The second column converts the logit results to a change in the estimated rate of employment. These conversions indicate how youths' probabilities of employment would change if they had the attribute (or some specified value of the attribute) whose effect is being examined, with mean values on all other variables in the equation.

Disability Characteristics—Table 8-17 shows again the sharp differences in the likelihood of employment between youth in the various disability categories, with youth in several categories 15 or more percentage points less likely to be employed than youth who were classified as learning disabled, even when functional abilities were held constant. For example, among youth with equivalent scores on the ability scales and who were comparable on background and other characteristics, youth classified as deaf were 29 percentage points less likely to be employed than youth classified as learning disabled. Variation between the disability categories was little different when the analysis was performed excluding youth who were attending postsecondary schools.

The significance of both the functional mental skills and self-care scales shows the effect of the pronounced variation in ability within disability categories. Indeed, the effect of being severely impaired seems modest, based on the coefficient associated with this category, until one considers the combined impact of the two ability scales. The estimated employment rate for youth who were categorized as severely impaired and who had the actual mean values on the self-care and functional mental skills scales for youth in this category (assuming they were average on all other characteristics) was less than 15%. IQ also was significantly related to employment in the expected direction.

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* A full description of variables is in Appendix C. Their unweighted means are found in Table D8-1, Appendix D, where correlations with the dependent measures for the full sample and the subsample included in the model also are shown. The absence of a discernible pattern of differences in these correlations suggests that no systematic bias was introduced in the multivariate results by limiting the analysis to respondents with data on all variables.

Table 8-17

FACTORS RELATED TO EMPLOYMENT STATUS: REDUCED-FORM MODEL

Variable	Coefficient	Change in Estimated Rate of Employment	
		Amount	For Increment
Disability characteristics			
Disability category†			
Emotionally disturbed	-.63**	-15.6	Emotionally disturbed vs. learning disabled
Speech impaired	-.11	-2.7	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-.54*	-13.5	Mentally retarded vs. learning disabled
Visually impaired	-1.15***	-27.4	Visually impaired vs. learning disabled
Hard of hearing	-.43	-10.7	Hard of hearing vs. learning disabled
Deaf	-1.25***	-29.4	Deaf vs. learning disabled
Orthopedically impaired	-2.59***	-47.6	Orthopedically impaired vs. learning disabled
Other health impaired	-.67*	-16.6	Other health impaired vs. learning disabled
Severely impaired	-.54	-13.3	Severely impaired vs. learning disabled
Functional mental skills score	.14***	13.6	High vs. medium (16 vs. 12)
Self-care score	.48***	24.8	High vs. medium (11 vs. 8)
IQ	.01*	4.9	100 vs. 80
Individual characteristics			
Age	-.09	-4.4	Age 20 vs. 18
Youth is male	.50***	11.7	Male vs. female
Youth is a minority	-.16	-3.9	Minority vs. nonminority
Household characteristics			
Head of household's education	.15*	3.4	High school graduate vs. dropout
From single-parent household	.29	6.8	Single-parent vs. two-parent household
Community characteristics			
Unemployment rate of local area	-.05*	-5.8	10% vs. 5%
Youth attended school in urban area	-.42*	-9.9	Urban vs. suburban
Youth attended school in rural area	-.30	-7.2	Rural vs. suburban
Other youth outcomes			
Frequency of seeing friends	.07	3.1	4 to 5 days/week vs. once/week
Group membership	.21	5.0	Yes vs. no
Youth out of high school 1 to 2 years	.10	2.3	1 to 2 years vs. less than 1 year

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Note: The analysis includes youth who were out of high school, aged 16 or over, and not institutionalized (N = 1,271). For details on variables appearing in this equation, see Appendix C. Unweighted means and correlations with the dependent variable for the full sample of youth and those in the multivariate analysis are in Appendix D, Table D8-1.

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* $p < .05$; ** $p < .01$; *** $p < .001$.

Individual Characteristics—The results of this analysis also confirm that gender was a critically important determinant of youth employment, even once characteristics of disability were taken into account. Males were about 12 percentage points more likely to have been employed than were females, when other factors in the analyses were controlled. As large as this effect is, however, it is still only about half of the total actual difference in employment rates between the genders we observed earlier (i.e., 53% vs. 30%, from Table 8-10). By implication, about one-half of the total difference between genders disappeared once one took into account the fact that females and males tended to be concentrated in different disability categories (see Chapter 2 for more detail on this point).

Household Characteristics—We further note that higher-SES youth were significantly more likely to be employed; coming from a household in which the head was a high school graduate rather than a dropout, for example, increased the probability of employment by 3 percentage points. The difference in the probability of employment related to coming from a single-parent rather than a two-parent household fell just short of statistical significance.

Community Characteristics—Employment prospects also were strongly influenced by the unemployment rate of the local labor market. Not surprisingly, youth were significantly less likely to be employed in areas suffering a shortage of job opportunities. Youth in urban areas also were at a disadvantage, being 10 percentage points less likely to be employed than their peers living in the suburbs.

Other Youth Outcomes—Whether youth had frequent friendship interactions or participated in groups was not significantly related to employment, independent of other factors.

The results in Table 8-18 denote the extent to which the background and demographic attributes relate to employment directly, apart from their indirect effects through their relationships to educational experiences. Note that relationships shift somewhat compared with those reported from analysis of youth characteristics alone. When school factors are included, fewer disability category differences are noted (e.g., differences in employment rates attributed to being emotionally disturbed were no longer statistically significant), and functional ability measures and IQ relationships also were marginally weaker. For example, the estimated change in the likelihood of employment related to youths' levels of functional mental skills fell from 14 percentage points when youth characteristics alone were considered to 11 percentage points when school factors were included in the analysis. This suggests that more than one-fifth of the change in employment attributed to functional mental skills (3 of 14 percentage points) influenced employment indirectly through the interrelationship of functional skills and youths' school experiences.

Comparing the two analyses further, we find that gender was an important determinant of the probability of being employed shortly after youth left high school in its own right, and not primarily because males had more favorable high school experiences (i.e., the relationships between gender and employment were not markedly different in the two models). However, SES, as measured by head of household's education, was no longer significantly related to employment when school factors were included in the analysis, suggesting that a portion of the variation in employment attributed to SES was indirect, through the influence of SES on the kinds of school experiences youth had.

Table 8-18

FACTORS RELATED TO EMPLOYMENT STATUS: FULL MODEL

		Change in Estimated Probability	
Variable	Coefficient	Amount	For Increment
Disability characteristics			
Disability Category†			
Emotionally disturbed	-.44	-11.0	Emotionally disturbed vs. learning disabled
Speech impaired	-.07	-1.8	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-.60*	-15.0	Mentally retarded vs. learning disabled
Visually impaired	-1.17***	-27.6	Visually impaired vs. learning disabled
Hard of hearing	-.41	-10.2	Hard of hearing vs. learning disabled
Deaf	-1.17***	-27.6	Deaf vs. learning disabled
Orthopedically impaired	-2.57***	-46.7	Orthopedically impaired vs. learning disabled
Other health impaired	-.68*	-16.7	Other health impaired vs. learning disabled
Severely impaired	-.33	-8.3	Severely impaired vs. learning disabled
Functional mental skills score	.11**	10.7	High vs. medium (16 vs. 12)
Self-care score	.45***	23.8	High vs. medium (11 vs. 8)
IQ	.01	4.2	100 vs. 80
Individual characteristics			
Age	-.17*	-8.3	Age 20 vs. 18
Youth is male	.55***	12.9	Male vs. female
Youth is a minority	-.16	-3.8	Minority vs. nonminority
Household characteristics			
Head of household's education	.12	2.7	High school graduate vs. dropout
Single-parent household	.25	6.0	Single-parent vs. two-parent household
Community characteristics			
Unemployment rate of local area	-.05*	-6.4	10% vs. 5%
Youth is in urban area	-.42*	-10.1	Urban vs. suburban
Youth is in rural area	-.23	-5.5	Rural vs. suburban
Other youth outcomes			
Frequency of seeing friends	.07	3.2	4 to 5 days/week vs. once/week
Group membership	.18	4.3	Yes vs. no
Youth out of high school 1 to 2 years	.21	5.0	1 to 2 years vs. less than 1 year
Youth graduated from high school	.74***	16.6	Graduated vs. dropped out
Youth aged out of high school	-.30	-5.4	Aged out vs. dropped out
School factors			
Youth took at least 1 vocational education course	.40*	9.3	Yes vs. no
Youth had work experience as part of vocational curriculum	.57**	13.9	Yes vs. no
Percent of time in regular education	.00	.6	6 classes vs. 3 classes
Youth attended special school	-.22	-5.1	Yes vs. no

Note: The analysis includes youth who were out of high school, aged 16 or over, and not institutionalized (N = 1,271). For details on variables appearing in this equation, see Appendix C. Unweighted means and correlations with the dependent variable for the full sample of youth and those in the multivariate analysis are in Appendix D, Table D8-1.

† Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* p < .05; ** p < .01; *** p < .001.

High school experiences themselves were strongly related to employment probabilities. Controlling for other factors, high school graduates were about 17 percentage points more likely to be employed than were those who dropped out. Youth who had vocational coursework in their last year in school also were more likely to be employed, and having had work experience as part of this coursework had additional salutary effects. On the other hand, having taken classes in a regular education setting failed to attain significance, suggesting that mainstreaming itself did not improve postschool employment prospects once characteristics of the youth and the other indicators of his or her school experiences were taken into account.

The results of the employment analyses thus show some support for our theories. The youth's disability category and other measures of ability were important determinants of the probability of employment for youth with disabilities just out of secondary school, but background attributes also were independently important, and what schools did made a difference. NLTS results suggest that imparting vocational skills and work experience substantially improved youths' chances of making a smooth transition to employment in the postschool period.

The Effects of Background: A Further Look

We have seen that background characteristics, including socioeconomic and minority status, local labor market characteristics, and school experiences, were important determinants of employment. But do these effects operate uniformly for all youth, regardless of their disability category? On one hand, we might hypothesize that the effects of these attributes may be inconsequential for youth whose disability makes it unlikely that they would be employed. These youth, it might be argued, face almost insurmountable barriers to employment caused by their disabilities and employers' reactions to them. Under these circumstances, other attributes may be of little importance—discrimination caused by being a minority group member may pale in importance, for example, and there may be few advantages to being from a high-SES background.

On the other hand, individual characteristics may be important precisely because youth in some disability categories face such formidable barriers to employment. Perhaps only youth with every other advantage, such as being white and having the resources that only higher SES families can bestow, can hope to find a niche in the labor market.

To address this issue, we performed separate analyses of employment for two groups: those classified as severely impaired* and all others. Table 8-19 compares the impacts of background characteristics, the local labor market, and school experiences on employment for youth in these two groups. Of course, as the bottom of this table shows, those who were severely disabled had much lower employment rates—15% vs. 41% for those in the remaining disability categories. Beyond this, however, the results suggest that background attributes were generally at least as important for those who were severely disabled as they were for youth in the remaining disability categories.[*]

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* See Appendix C for the definition of severely impaired used in multivariate analyses.

Table 8-19

A COMPARISON OF THE EFFECTS OF BACKGROUND ON EMPLOYMENT FOR SEVERELY DISABLED AND OTHER YOUTH WITH DISABILITIES

	Change in Estimated Rate of Employment for Youth Who Were:		
Variable	Severely Impaired	In Other Disability Categories	For Increment
Age	-5.4	-5.9*	Age 20 vs. 18
Youth is male	9.8	8.3**	Male vs. female
Youth is a minority	-15.2	-6.1*	Minority vs. nonminority
Head of household's education	2.5	4.4**	High school graduate vs. dropout
Unemployment rate of local area	-10.1	-4.8*	10% vs. 5%
N	237	1,239	
Mean employment rate	14.8	41.7	

Note: The equations also include controls for the respondent's disability and the time since the respondent left high school; effects for these variables are not shown.

* $p < .05$; ** $p < .01$; *** $p < .001$.

For example, gender was about as important for youth who were severely impaired, with males enjoying nearly a 10 percentage point higher likelihood of being employed. Minority status was more important for youth with severe disabilities than for those in the remaining categories, with minorities more than 15 percentage points less likely than nonminorities to be employed among the severely impaired, but only 6 percentage points less likely among others. The local area unemployment rate, too, was especially important for the severely impaired. Somewhat surprisingly, only the head of household's education was less important for youth with severe disabilities than for others. Thus, even for youth who were severely disabled, background characteristics were important in shaping opportunities for a successful transition out of high school.

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[*] In making these comparisons, it is more important to note the size of the effect than the level of statistical significance, because differences in significance levels are heavily influenced by the differences in sample sizes between the two groups.

Job Profiles of Employed Youth

To this point, we have been concentrating on the extent to which youth with disabilities were competitively employed shortly after leaving secondary school. But what were their jobs like?

Some research has shown that persons with disabilities who are employed often are concentrated in menial jobs that pay low wages (e.g., Siegel, 1987). Data collected in NLTS parent interviews enable us to ascertain the extent to which this pattern held for youth with disabilities nationally. Table 8-20 begins this investigation by reporting hours worked per week, tenure (i.e., months employed with the same employer), and hourly wage of current jobs for those who were competitively employed.

Among employed out-of-school youth, nearly 40% worked part time. Although still appreciable, the extent of part-time work was much lower than the 70% rate among employed secondary school students with disabilities that was reported in Table 8-5. Unlike secondary school students, the extent of full-time employment varied somewhat across disability categories. From 29% (for those with orthopedic impairments) to 63% (for those with learning disabilities) of employed youth worked full time.

Given that youth had left school less than 2 years earlier, one would expect them generally to have worked at their jobs a short time. Indeed, they had been with their current employers only about three-quarters of a year, on average. Nonetheless, reinforcing the image of transient job attachments suggested by the comparison of current with the past year's employment rates, from one-third to more than one-half of employed youth in each category had been with their current employer for less than 2 months.

The median wage of employed out-of-school youth was $3.95 per hour; those with learning disabilities earned slightly more and those with mental retardation earned somewhat less. For a full-time job, an hourly wage of $3.95 amounts to $8,216 annually, barely above the 1987 federally designated poverty threshold for a two-person family. However, part-time work was not uncommon, as we have seen, and many youth earned substantially less than $3.95 per hour. Overall, for example, 33% of employed youth earned the minimum wage or less, and substantially more in some categories did so (e.g., 71% for the orthopedically impaired). In each disability category, a substantial percentage were reported to earn just above the minimum wage to $5.00 per hour. The hourly wage distribution tapered off markedly at the higher end of the wage scale, with no more than 6% of youth overall or 7% of those in any single disability category earning more than $7.50 per hour. Despite these generally low wages, out-of-school youth earned appreciably more than their employed counterparts still in school, among whom 65% to 85% earned the minimum wage or less (as we saw in Table 8-7).

Table 8-20

HOURS WORKED, TENURE, AND WAGES OF OUT-OF-SCHOOL YOUTH WITH DISABILITIES

Job Characteristics	All Conditions	Primary Disability Category: Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired
Percentage working:									
1 to 20 hours per week	20.2	16.9	27.2	32.6	26.2	35.7	26.0	22.7	35.6
	(2.8)	(3.6)	(5.9)	(7.3)	(6.4)	(10.0)	(8.4)	(7.2)	(18.6)
21 to 34 hours per week	20.2	20.1	23.4	23.4	16.8	12.6	22.1	14.8	35.8
	(2.8)	(3.8)	(5.7)	(6.6)	(5.5)	(6.9)	(7.9)	(6.1)	(18.6)
35 to 44 hours per week	52.5	56.0	38.7	33.4	52.9	47.2	44.6	53.9	21.8
	(3.5)	(4.7)	(6.5)	(7.3)	(7.3)	(10.4)	(9.5)	(8.5)	(16.0)
45 hours or more per week	7.1	7.0	10.7	10.6	4.2	4.6	7.3	8.6	6.8
	(1.8)	(2.4)	(4.1)	(4.8)	(2.9)	(4.4)	(5.0)	(4.8)	(9.8)
Percentage having tenure with current employer of:									
2 months or less	39.2	38.3	52.5	34.9	33.4	40.6	35.4	45.3	44.6
	(3.3)	(4.5)	(6.3)	(7.5)	(6.6)	(10.1)	(8.8)	(8.3)	(19.7)
3 to 6 months	22.9	21.9	22.2	31.9	27.0	24.2	16.1	19.0	34.3
	(2.8)	(3.8)	(5.3)	(7.3)	(6.2)	(8.9)	(6.8)	(6.6)	(18.8)
7 to 12 months	20.1	20.2	13..2	22.5	24.7	24.2	35.5	16.2	8.0
	(2.7)	(3.7)	(4.3)	(6.5)	(6.0)	(8.8)	(8.8)	(6.2)	(10.7)
More than 1 year	17.7	19.6	12.0	10.7	14.9	11.0	13.0	19.5	13.2
	(2.6)	(3.7)	(4.1)	(4.8)	(5.0)	(6.5)	(6.2)	(6.6)	(13.4)
Percentage earning:									
Less than minimum wage	9.8	7.2	14.8	9.2	18.9	8.1	5.9	8.5	12.6
	(2.1)	(2.5)	(4.9)	(4.7)	(6.0)	(6.2)	(4.6)	(5.0)	(12.9)
Minimum wage	22.9	17.9	32.8	33.2	32.6	44.7	35.9	32.1	58.0
	(3.1)	(3.8)	(6.5)	(7.7)	(7.2)	(11.3)	(9.3)	(8.3)	(19.2)
More than minimum to $5.00	45.3	48.4	37.6	38.0	39.5	32.5	35.4	47.4	15.9
	(3.6)	(4.9)	(6.7)	(8.0)	(7.5)	(10.6)	(9.2)	(8.9)	(14.2)
$5.01 to $7.50	16.1	19.6	9.1	18.9	5.0	13.5	22.1	9.7	8.2
	(2.7)	(3.9)	(4.0)	(6.4)	(3.3)	(7.7)	(8.0)	(5.3)	(10.7)
More than $7.50	6.0	6.9	5.8	.8	4.1	1.2	.7	2.3	5.3
	(1.7)	(2.5)	(3.2)	(1.4)	(3.1)	(2.5)	(1.6)	(2.7)	(8.7)
Median wage	$3.95	$4.25	$4.00	$4.00	$3.40	$3.48	$3.60	$3.70	$3.48
N	936	271	137	89	96	59	97	97	33

Notes: Standard errors are in parentheses.

"All conditions" includes youth in all 11 disability categories; data are reported separately for categories only with at least 30 cases. Job characteristics are reported for the job held as of the interview date.

Source: Parent interviews.

We might expect that job tenures and wages would be higher for youth who had been out of school longer, and who, therefore, had a greater chance to establish themselves in the labor market. Table 8-21 shows this trend. Only 29% of employed youth out of school less than 1 year had been with their employer for more than 6 months, compared with 47% of youth out of school from 1 to 2 years. However, there is no evidence that the longer tenures of the second group were reflected in higher wages; i.e., the hourly wage distributions of these two cohorts were nearly identical.

Table 8-21

VARIATIONS IN TENURE AND HOURLY WAGES BY LENGTH OF TIME SINCE SECONDARY SCHOOL

	Length of Time Out of Secondary School:			
	Less than 1 Year		1 to 2 Years	
Job Characteristics	%	S.E.	%	S.E.
Tenure with current employer				
2 months or less	44.9	4.8	33.4	4.4
3 to 6 months	26.1	4.2	19.5	3.7
7 to 12 months	14.0	3.3	26.5	4.1
More than 1 year	15.1	3.4	20.5	3.8
Hourly wage				
Less than the minimum	10.7	3.2	8.8	2.9
Minimum wage	23.7	4.4	21.9	4.3
More than minimum to $5.00	44.1	5.1	46.6	5.2
$5.01 to $7.50	15.7	3.7	16.5	3.8
More than $7.50	5.8	2.4	6.3	2.5
N	456		480	

Source: Parent interviews.

The occupations held by youth help explain why their hourly wages were generally low. As Table 8-22 shows, the extent of employment in professional, managerial, or sales occupations was generally inconsequential. Of course, infrequent employment in these kinds of jobs might be expected among youth with only a high school degree, regardless of whether they had work-limiting disabilities. More interesting, perhaps, was the concentration of youth with disabilities in unskilled laborer and service occupations, categories offering generally minimal prospects for steep wage gains or meaningful career advancement. Moreover, the semi-skilled operative jobs in which youth were found tended to be those within this category with the least promising career prospects (e.g., packers, service station attendants).

Table 8-22

OCCUPATION OF EMPLOYED OUT-OF-SCHOOL YOUTH WITH DISABILITIES

		Primary Disability Category:						
Occupations	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf
Percentage working as:								
Professional, managerial, and sales workers	4.7 (1.4)	5.2 (2.1)	2.2 (1.9)	3.0 (2.7)	2.2 (2.1)	11.2 (6.5)	2.6 (3.1)	2.4 (2.7)
Clerical (e.g., stock clerks, secretaries, postal clerks)	13.8 (2.4)	14.2 (3.3)	13.8 (4.4)	22.8 (6.5)	8.2 (3.9)	22.6 (8.6)	20.3 (7.7)	22.2 (7.2)
Craft workers (e.g., apprentices, mechanics)	13.4 (2.3)	14.7 (3.4)	15.3 (4.6)	15.4 (5.6)	6.2 (3.5)	5.9 (4.9)	8.3 (5.3)	18.5 (6.7)
Operatives (e.g., packers, service station attendants)	12.7 (2.3)	14.2 (3.3)	7.8 (3.4)	6.9 (3.9)	11.4 (4.5)	7.0 (5.3)	18.3 (7.4)	12.7 (5.8)
Laborers (e.g., lawn mowing, grounds keepers)	22.4 (2.9)	23.6 (4.0)	20.3 (5.1)	18.9 (6.1)	21.3 (5.9)	9.1 (5.9)	15.8 (7.0)	6.8 (4.4)
Service workers								
Janitors and maids	6.5 (1.7)	4.3 (1.9)	4.2 (2.6)	6.5 (3.8)	18.6 (5.6)	6.1 (4.9)	2.4 (2.9)	4.7 (3.7)
Food service	16.2 (2.5)	14.4 (3.3)	20.3 (5.2)	17.6 (5.9)	21.5 (5.9)	19.3 (8.2)	11.7 (6.2)	19.0 (6.8)
Childcare, including babysitting	2.7 (1.1)	1.8 (1.2)	1.9 (1.7)	4.6 (3.3)	6.7 (3.6)	13.2 (7.0)	4.2 (3.9)	2.4 (2.7)
Other	7.8 (1.8)	7.6 (2.5)	14.4 (4.5)	4.4 (3.2)	3.9 (2.8)	5.7 (4.8)	16.4 (7.1)	11.2 (5.5)
N	903	259	134	90	93	59	91	91

Notes: Standard errors are in parentheses.

"All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 cases. Numbers are for the job held as of the survey date.

Source: Parent interview.

There was some variation is this finding for youth across the various disability categories. For example, 72% of employed youth with mental retardation were in laborer or service occupations, whereas 44% of employed youth who were deaf were in these categories. At the other end of the occupational spectrum, 11% of employed youth who were visually impaired were in professional, managerial, or sales jobs, and 18% of employed youth who were classified as deaf were craft workers.

Not surprisingly, job characteristics were related, as Table 8-23 shows. Wages tended to be higher for youth who worked full time and for those who were in professional or craft occupations. This evidence reinforces the picture of a relatively small subset of youth who were showing reasonable evidence of career success, while most others were experiencing greater difficulty. For example, 21% of employed youth with disabilities were working full time in white-collar or skilled or semiskilled blue-collar jobs earning above $5.00 per hour; recall that these 21% were of the 46% of youth who were employed.

Table 8-23

RELATIONSHIP BETWEEN JOB CHARACTERISTICS FOR OUT-OF-SCHOOL EMPLOYED YOUTH

Job Characteristics	Median Hourly Wage	N
Hours worked per week		
1 to 20	$3.45	206
21 to 34	3.60	160
35 to 44	4.00	361
45 hours or more	4.50	71
Occupation held		
Professional and managerial	5.00	20
Sales	3.50	29
Clerical	3.93	156
Craft workers	4.50	89
Operatives	4.35	83
Laborers	4.25	125
Service workers	3.60	248
Odd jobs	2.76	32

Source: Parent interviews.

Table 8-24 presents the hourly wage and occupational distribution for men and women with disabilities.* The gender difference in these job characteristics is as striking as was the difference in employment rates. About as many employed females as males with disabilities earned between the minimum wage and $5.00 per hour (about 45%), but females were nearly twice as likely as males to be earning the minimum wage or less (51% vs. 28%; p<.01), and they were only one-seventh as likely to be earning more than $5.00 per hour (4% vs. 27%; p<.01). However, gender differences are confounded with disabilities, as we have demonstrated, in that males tended to cluster in categories of somewhat less severe impairment (e.g., learning disabled). When we examined median wages for males and females within categories, no significant differences were observed. For example, among employed youth with mental retardation, males earned a median wage of $3.65, compared with $3.35 for females; for deaf youth, comparable figures were $3.65 for males and $3.70 for females.

Gender differences in occupations also were pervasive. Females with disabilities were twice as likely as males to be clerical (21% vs. 12%; p<.05) or service workers (58% vs. 27%; p<.05) and much less likely to be craft workers (0% vs. 17%; p<.01) or laborers (8% vs. 26%; p<.01). Given that Chapter 3 already has shown gender differences in the kinds of jobs for which high school students were trained, the occupational segregation of youth who had left high school should come as no surprise.

Information about the occupations and wages of employed youth in the general population help put these figures in perspective. As shown in Table 8-24, differences between males with disabilities and two groups of males from the general population were relatively modest. Employed males with disabilities were somewhat less likely to be operatives (14% vs. 24%; p<.01) than their counterparts in the general population and somewhat more likely to be clerical workers (12% vs. 6%; p<.05) and service workers (27% vs. 16%; p<.05), but about equal proportions of both groups earned the minimum wage or less (about 30%). Differences between groups of females were somewhat more pronounced, however. Specifically, females with disabilities were more heavily concentrated in service occupations (58% vs. 37%; p<.05) and less represented in clerical occupations (21% vs. 37%; p<.05) than their female counterparts in the general population, although about half of both groups earned the minimum wage or less.

Finally, note that the differences between youth with disabilities and those in the general population were only slightly reduced when the NLSY sample was weighted to match the NLTS sample on the basic demographics of its respondents. Implicitly, this means that only a small part of the differences between the groups was accounted for by the fact that youth with disabilities generally were from lower-SES and minority households.

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* No significant differences in wages or occupational distributions were noted for youth based on whether they had graduated from secondary school or whether they had received vocational education in secondary school.

Table 8-24

JOB CHARACTERISTICS OF EMPLOYED MALES AND FEMALES WITH DISABILITIES AND THOSE IN THE GENERAL POPULATION

	Males						Females					
	Youth with Disabilities		Comparison Population†		Youth in the General Population		Youth with Disabilities		Comparison Population†		Youth in the General Population	
Occupation	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.	%	S.E.
Youth worked as:												
Professional, managerial, or sales workers	4.6	1.6	6.5	.9	7.7	1.1	4.8	3.2	10.1	1.2	11.3	1.4
Clerical workers	11.9	2.5	6.0	.9	5.8	.9	21.2	6.1	36.7	2.0	37.0	2.1
Craft workers	16.6	2.9	18.4	1.4	19.3	1.6	.1	.4	1.4	.5	1.6	.5
Operatives	13.9	2.7	24.5	1.6	23.6	1.7	8.0	4.0	10.4	1.2	9.8	1.3
Laborers	25.8	3.4	26.6	1.6	27.5	1.8	8.3	4.1	3.6	.8	3.4	.8
Service workers												
Janitors and maids	6.4	1.9	5.1	.8	4.2	.8	6.7	3.7	3.1	.7	3.0	.7
Food service	13.0	2.6	10.3	1.1	9.3	1.1	29.2	6.8	18.3	1.6	18.6	1.7
Childcare	.5	.5	1.0	.4	.6	.3	11.8	4.8	7.9	1.1	7.7	1.2
Other	7.3	2.0	1.8	.5	2.1	.6	9.9	4.4	8.5	1.1	7.5	1.1
Hourly wage												
% earning minimum wage or less	27.9		35.3	1.8	31.3	1.9	51.2		50.4	2.1	48.2	2.2
N	658		1,544				246		1,228			

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† Youth from the general population with demographic characteristics similar to youth with disabilities.

Source: Data for youth with disabilities are from NLTS parent interviews.
Those for the general and comparison populations are from NLSY youth interviews.

Trends in Employment Over Time

Results in the preceding sections tell us much about the employment experiences of youth with disabilities in the period just after they left school. As important as these results are, however, even more informative would be knowing how these experiences changed over time. As we saw using comparisons from the NLSY, youth in the general population also had only modest employment rates just after they left school, but a body of literature that has examined the school-to-work transition for non-college-goers tells us that these rates improved steadily over the subsequent several years, as youth aged. Did the same trend apply to youth with disabilities?

To understand the employment trends of youth with disabilities, parents of youth who were not currently working but who had had jobs in the previous year were asked why their sons' or daughters' previous jobs had ended. Their answers are shown in Table 8-25. Only 14% of parents volunteered that their child was fired, suggesting that employer dissatisfaction was not generally a direct cause of employment instability. On the other hand, 37% of youth had quit their job, and an additional 36% were in temporary jobs that ended.

Interpretation of these reports is complicated somewhat by the fact that some out-of-school youth had left secondary school within the preceding year. Therefore, parents could be referring to work-study jobs in their responses to this question in some cases. The second

Table 8-25

PARENTS' REPORTS OF REASONS OUT-OF-SCHOOL YOUTH HAD LEFT THEIR LAST JOB

Reason Last Job Ended	Youth Out of High School Up to 2 Years	Youth Out of High School 1 to 2 Years
Percentage reporting:		
Youth quit	37.2 (5.5)	39.0 (7.9)
Youth was fired	13.8 (3.9)	15.5 (5.9)
Youth was laid off	12.7 (3.8)	19.2 (6.4)
Temporary job ended	36.3 (5.4)	26.2 (7.2)
N	438	234

Notes: Standard errors are in parentheses.
Includes youth who were out of high school and who were employed in a paid job sometime in the preceding year, but who were not employed currently.

Source: Parent interviews.

- What characteristics of students were related to their employment rates (e.g., gender, grade level)? Males were significantly more likely than females to have had paid jobs of some kind (60% vs. 46%), but the extent of work-study employment was almost equivalent for the two groups. Work-study and total employment were sharply higher for youth in upper grades compared with those at earlier grade levels.
- How did employment rates for students with disabilities compare with those for secondary school students in the general population? The extent of paid employment for youth with disabilities was quite similar to figures for youth in the general population.
- What were the job profiles of employed secondary school students with disabilities? Although youth were gaining work experience in a diversity of occupations, their concentration in lower-skill jobs stands out. More than 1 in 4 students worked as laborers, including lawn mowing, grounds keeping, and general construction; they also concentrated in service occupations, including janitors/maids, food service workers, and babysitters. More than half of students worked fewer than 20 hours per week, while 1 in 4 worked 35 hours or more per week (summer jobs were included in these figures). Typical earnings were at or below the federal minimum hourly wage.
- What secondary school training or services were provided students to help prepare them for employment? Half of students with disabilities had taken at least one occupational oriented vocational education course in their most recent year in secondary school, with vocational education being more common for youth who were classified as deaf, for example (69%) than for youth with orthopedic or multiple impairments (36% and 26%).

For youth who had left secondary school, we have reported the following:

- To what extent were out-of-school youth with disabilities working? Almost half of youth (46%) who had been out of secondary school up to 2 years were reported by parents to be employed at the time of the interview. Rates of current employment ranged from 58% of youth with learning disabilities to 8% of youth with multiple handicaps. Rates of employment at some time in the preceding year were substantially higher (70%).
- Who had paid jobs? What factors were related to whether youth with disabilities had paid jobs in the early years after secondary school? Results of multivariate analyses indicate that rates of current competitive employment were significantly higher for youth with higher functional abilities. Employment also was more common for males, younger exiters, suburban residents, and those from households with higher socioeconomic status. Secondary school experiences were important; independent of other factors, youth who graduated from high school, took vocational education in their last year in high school, or had work experience as part of their vocational training were significantly more likely than other youth to be competitively employed after high school.
- What were the job profiles of employed youth with disabilities who had been out of secondary school up to 2 years? Among employed youth, 40% worked part time and had spent, on average, 9 months with their current employer. The median wage was $3.95 per hour, with wages being lower for part-time workers ($3.45) than for full-time workers ($4.00). Youth were concentrated in unskilled laborer and service occupations. Young women with disabilities were nearly

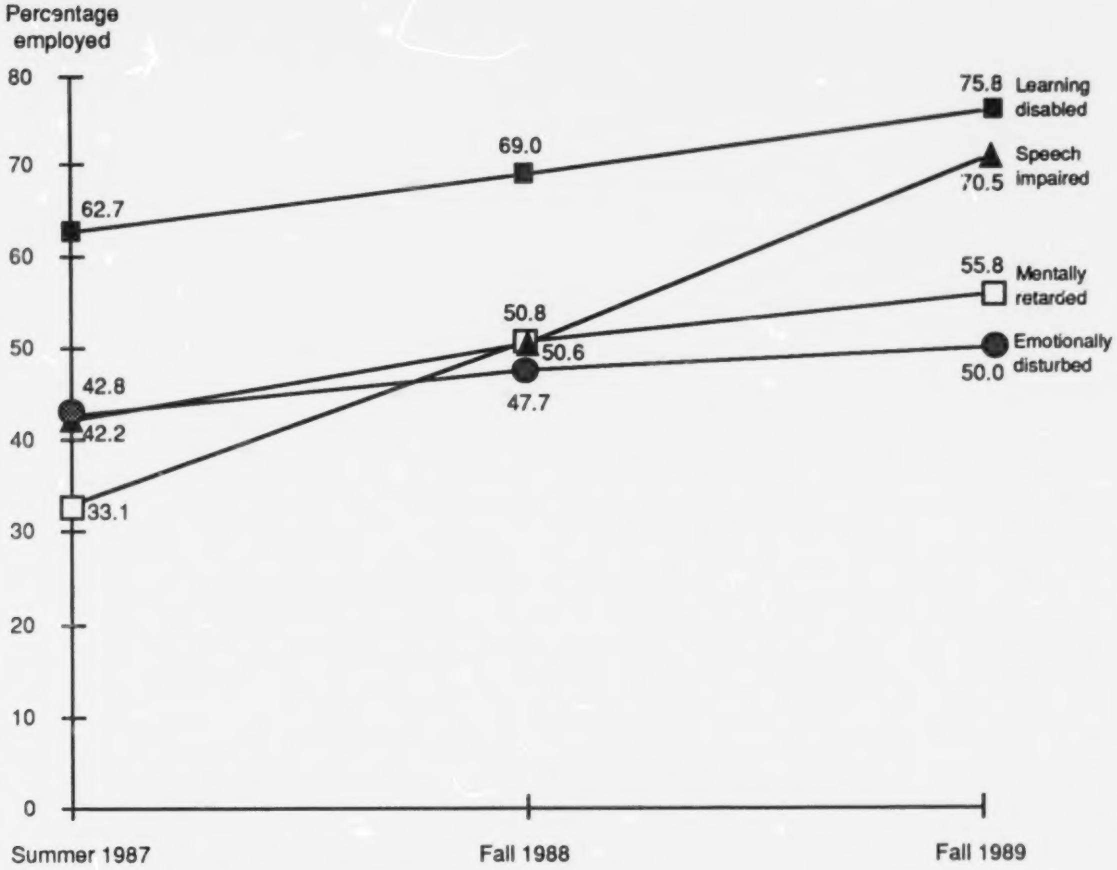

FIGURE 8-6 TRENDS IN EMPLOYMENT FOR OUT-OF-SCHOOL YOUTH IN SELECTED DISABILITY CATEGORIES

Source: 1987 parent interviews and 1989 parent/youth interviews.

Summary

This chapter has provided a broad overview of the employment experiences of youth with disabilities. For secondary school students, we have reported the following:

- To what extent did secondary school students with different disabilities gain work experience through work-study jobs or other paid employment? Among secondary school students with disabilities who were in grades 7 through 11, parents reported that 14% had had a work-study job in the previous year. Many more youth had held paid jobs apart from work-study programs. More than half of students (56%) had gained work experience through paid employment in the previous year. Generally, youth in disability categories with the highest rates of total paid employment (e.g., learning disabled, emotionally disturbed) were somewhat less likely to have had work-study jobs, which were more common for youth classified as mentally retarded, deaf, or multiply handicapped.

column of Table 8-25 clarifies this issue by examining only youth who had been out of school 1 to 2 years. Note that reports of temporary jobs ending were less common, but still accounted for more than one-quarter of all job separations.

Examining the trends in employment rates as a cohort of youth age provides another way of understanding employment stability or instability. For youth in the general population, current employment gradually increases over time and approaches the rate of being employed sometime during the past year. This is the consequence of a gradual stabilization of employment and a decrease in the rate of job turnover. If the same stabilization did not occur for youth with disabilities, we can conclude with some confidence that very different processes were at work for these two groups.

Exiter substudy data for a subsample of NLTS youth who had left secondary school and were classified as learning disabled, emotionally disturbed, speech impaired, or mildly/moderately mentally retarded provide a way of addressing this issue. Substudy results relating to employment are examined more fully elsewhere (D'Amico and Marder, in process), but the basic trends are shown here. Figure 8-6 shows trends in employment rates for youth in the selected disability categories at three points in time: at the time of the 1987 parent interviews, in the fall of 1988 (collected retrospectively in the 1989 substudy interviews), and in the fall of 1989.

The results suggest cause for optimism about the longer-term employment prospects of such youth. Youth in three of the four disability categories showed a steady increase in their employment rates over these 2 years. Moreover, for youth classified as mentally retarded or learning disabled, the increases were quite steep, suggesting a fairly rapid improvement in overall employment rates in just the few years after youth exited school. For youth classified as emotionally disturbed, the trend shows a modest rise over the course of the first year but little gain in the second year.

Inferences from these results must be made cautiously. Most worrisome, parents reported youths' employment in 1987, whereas youth were respondents for 62% of the exiter substudy interviews, from which estimates of employment for 1988 and 1989 were drawn. Because parents tend to underreport employment for their teenage children (Freeman and Medoff, 1982), the initial employment rates may be somewhat biased downward, leading to an exaggerated upward sweep to the trend lines. Nonetheless, except for youth categorized as emotionally disturbed, the exiter substudy data for the last two periods show evidence of an upward trend, even for that abbreviated time period, suggesting real and substantive improvement in the employment rates of youth as they aged. The generalizability of these findings to youth in disability categories not included in the exiter substudy is unknown, but NLTS follow-up data will enable us to address this question.

twice as likely as men to be earning the minimum wage or less and to be working in service occupations.

- How did employment experiences of youth with disabilities compare with those of youth in the general population who had recently left school? The 46% employment rate for out-of-school youth with disabilities was markedly lower than the rate of 59% for youth in the general population. Young men with disabilities did not differ greatly from youth in the general population in their occupational distribution or wages. Differences for women were more pronounced, perhaps because females with disabilities tended to be more severely impaired than males. Young women with disabilities concentrated significantly more in service occupations and less in clerical occupations than women in the general population.
- How did rates of employment change over time? We find that employment rates increased steadily between 1987 and 1989 for youth who were classified as learning disabled, speech impaired, or mildly/moderately mentally retarded, but were fairly stable for those classified as emotionally disturbed.

Results presented in this chapter suggest much to applaud and much reason for hope and optimism. By a number of indicators presented in this and previous chapters, secondary schools were beginning to be responsive to the special needs of students with disabilities by making available a variety of supportive and job-related services. Substantial numbers of youth with disabilities showed evidence of receiving vocational training to help them become productive members of the workforce, and many were gaining valuable work experience in their communities, either as part of work-study programs or through their own efforts. Subsequently, many youth with disabilities, at least those with milder impairments, evidenced employment rates that grew steadily in the years after they left high school and in some cases approached rates of youth in the general population.

But the OSERS transition model demands that we set our sights high: "The goal of sustained employment should not be disregarded because of the presence, nature, or severity of a disability. ...The quality of employment that results ... can be defined and assessed in the same way that it is defined for others" (Will, 1984). By this standard, results presented in this chapter suggest much that is worrisome. Secondary school exiters in many disability categories reported employment rates substantially short of rates for the general population of youth. Moreover, many of those who were employed reported job characteristics that held out little prospect for economic self-sufficiency.

As we look ahead, we recognize that the future holds both continued challenges and new opportunities. On one hand, the U.S. economy is undergoing profound changes. Rapid technological innovations, coupled with an industrial transformation that is shifting the occupational structure toward positions requiring greater skills, promise to alter greatly the opportunity structure of the workforce. Poorly educated workers with ill-defined work skills will see their employment prospects fade. Thus, youth with disabilities will be competing in an environment that makes substantially greater demands of its workers.

At the same time, America is projected to experience severe nationwide shortages of entry-level workers for the first time in decades. The lost productivity of Americans with disabilities, therefore, represents a resource that the economy can ill afford to squander. In this environment, youth with disabilities with well-defined work skills and the supportive services they need to establish themselves face heightened prospects for success. It will take a concerted effort to meet these challenges and seize these opportunities.

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9 ENROLLMENT IN POSTSECONDARY SCHOOLS

by Paul Butler-Nalin and Mary Wagner

As discussed in the preceding chapter, one common path from secondary school to adulthood involves employment after high school. Another leads from high school to postsecondary education or training. This path can take students to 4-year colleges or universities, 2-year or junior colleges, or a variety of public and private vocational or trade schools.

The value and benefits of these kinds of postsecondary education have been conceptualized by researchers in a number of ways. From an economic perspective, postsecondary education is viewed as an investment with measurable economic returns (Becker, 1964; Mincer, 1970). Increased opportunities for better jobs and greater earnings accrue as the improved abilities, skills, and knowledge of students make them more desirable employees and more productive workers. The sociological perspective emphasizes the changes in the status of individuals resulting from additional education. From this perspective, the benefits of education and training beyond high school are in the associated higher social and occupational status. Educational psychology has focused more on changes in behaviors, abilities, or personality characteristics that result from postsecondary education; the broadening effects of postsecondary schooling, particularly collegiate education, have been regarded as major benefits (Perry, 1968; Chickering, 1969).

Although not all research supports the view that the effects of schooling are similar for all types of students (Hunt, 1963; Flynn, 1981) or that postsecondary education effects are consistent for all types of postsecondary schools or programs (Centra and Rock, 1971), there is little disagreement that students who successfully complete postsecondary academic or vocational programs have a better chance of making a successful transition to productive adult life.

Postsecondary education and training may be particularly important for youth with disabilities. Improved skills may help to compensate for whatever obstacles to employment they may experience as a result of their disabilities. The support services that may be part of postsecondary education or training programs, such as career counseling or job placement services, also may help youth with disabilities target their educational programs and job searches toward careers most appropriate to persons with their combinations of abilities and disabilities. The opportunities for social interactions with other students may expand students' friendship circles and the satisfaction they take in their post-high-school activities.

Because of the evident benefits of collegiate education and postsecondary vocational training for students in the general population (Rumberger and Daymont, 1984) and concern about impediments to such education and training for those with disabilities (Stilwell, Stilwell, and Perritt, 1983), policymakers and educators are considering with interest the role of postsecondary education in preparing youth with disabilities for life beyond high school (Flynn, 1982; Will, 1984; Baker and Blanding, 1985; Greenan, 1985).

However, until recently, information about the participation of youth with disabilities in postsecondary education was sparse (Kirchner and Simon, 1984; Willingham, 1987). From the NLTS, we are beginning to know more about the postsecondary educations of youth with disabilities and the factors associated with their postsecondary enrollment. This chapter highlights key aspects of the postsecondary school enrollment of youth with disabilities. We consider the following questions:

- To what extent did youth with disabilities enroll in postsecondary schools in the early years after high school and what types of postsecondary schools and programs did they attend?
- How did the rates of postsecondary school enrollment for youth with disabilities differ from those of youth in the general population?
- Who enrolled in postsecondary schools? What individual, household, and community characteristics and secondary school factors were associated with higher rates of postsecondary school enrollment?
- How intensely did postsecondary students with disabilities pursue their educations and how well did they do in terms of grades and program completion?
- What changes in the patterns of postsecondary school enrollment occurred with greater time out of secondary school?

These questions are addressed in the following sections of this chapter.

Enrollment in Postsecondary Schools Shortly After High School

There is little question that our society is placing increasing importance on education and training beyond high school. It is also clear that opportunities for postsecondary education and training for youth with disabilities are expanding. For example, the *Directory of College and Career Programs for Deaf Students* now lists more than 150 postsecondary schools with programs for deaf students; 27 were listed in its first edition 15 years ago (Rawlings, Karchmer, and DeCaro, 1988). Increased opportunities for postsecondary education are reflected in increased attendance rates among students with disabilities. For example, a recent study by the American Council on Education reported that 7.4% of college freshmen surveyed in 1985 had disabilities, up from 4.8% of those surveyed in 1978 (ACE, 1987). Despite the growth in the importance placed on postsecondary education and on both the opportunities and propensity to acquire it, according to NLTS estimates, enrollment in 2-year or 4-year colleges or postsecondary vocational or trade schools still was fairly rare among youth with disabilities in their first 2 years after secondary school.

About 14% of youth with disabilities who left high school in the 1985-86 or 1986-87 school year had enrolled in some type of postsecondary school in the year before the interviews (summer/fall 1987). As shown in Figure 9-1, a traditional college program was rare for these students. It was most common for youth with disabilities to attend vocational schools (9%), while 4% attended a 2-year or junior college. Only 1% attended a 4-year college or university, and fewer than 1% attended some combination of these kinds of schools. Enrollment rates in postsecondary schools overall and by type of school did not vary between youth who had been out of secondary school up to 1 year and those who had been out of school from 1 to 2 years.

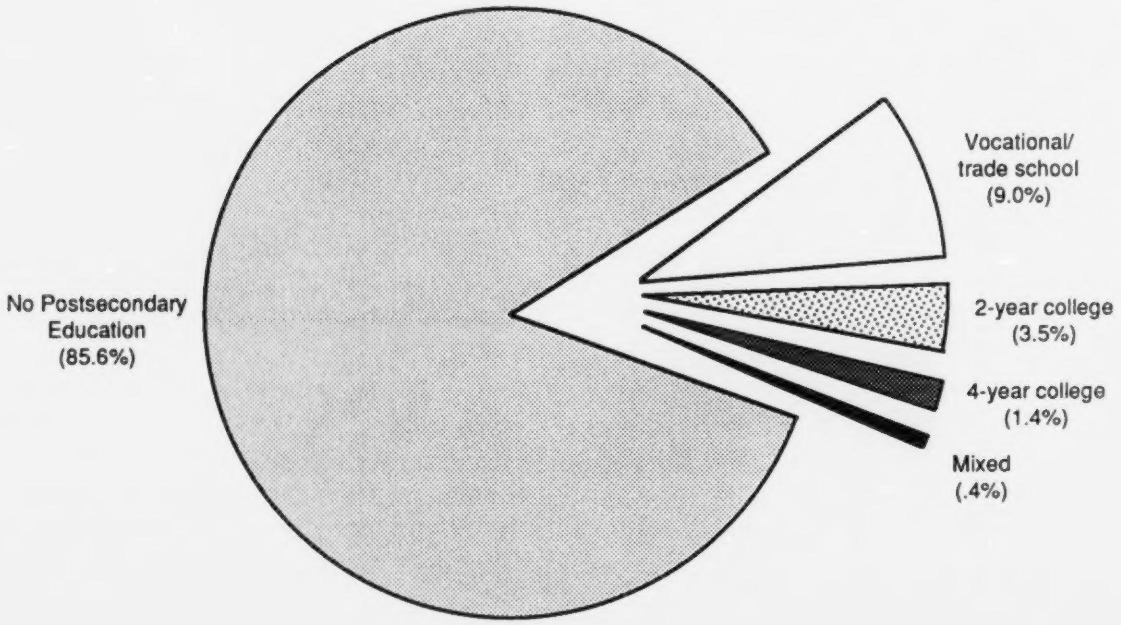

FIGURE 9-1 TYPES OF POSTSECONDARY SCHOOLS ATTENDED BY HIGH SCHOOL EXITERS WITH DISABILITIES (n=2,557)

Source: Parent interviews.

Figure 9-2 presents the postsecondary school enrollment rates for youth in each disability category. Postsecondary enrollment was higher for youth with speech, sensory, or other health impairments than for youth in other disability categories. More than 30% of youth who were classified as visually impaired or deaf and about 1 in 4 students classified as hard of hearing or having speech or other health impairments had attended postsecondary schools in the previous year. Among those classified as learning disabled, 16% of exiters from high school had enrolled in some kind of postsecondary school in the preceding year. Postsecondary education was least common for students classified as mentally retarded (8%) or multiply handicapped (3%).

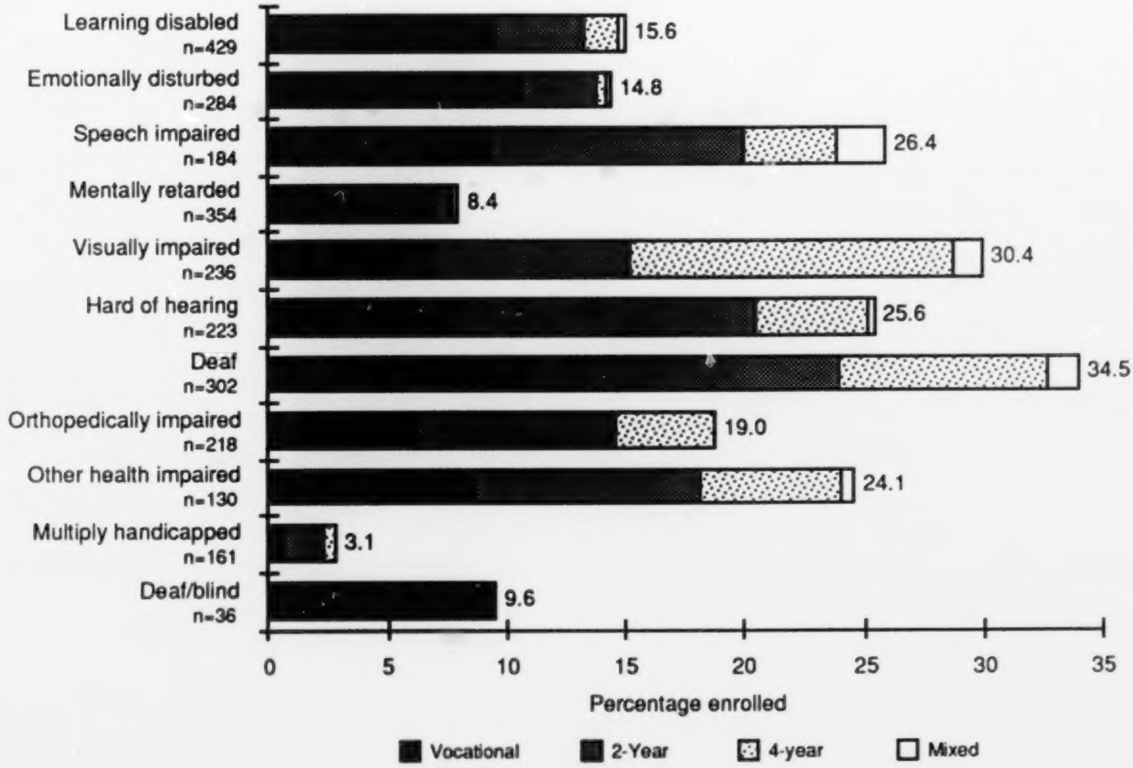

FIGURE 9-2 VARIATIONS IN POSTSECONDARY SCHOOL ENROLLMENT BY DISABILITY CATEGORY

Source: Parent interviews.

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The differences in postsecondary school enrollment rates by disability category are largely a function of differences in 2-year and 4-year college attendance*; there were no statistically significant differences in the rates at which youth attended vocational/trade schools, except for the significantly lower rate of attendance by youth with multiple handicaps. For example, about 1 in 10 high school exiters classified as learning disabled, emotionally disturbed, or deaf attended vocational/trade schools only, compared with 1% of exiters in the multiply handicapped category ($p<.001$).

Variations in college attendance rates for youth in different disability categories may be related to differences in their abilities to handle college work. They also may reflect the rates at which youth with different disabilities graduated from high school. Because graduation is a requirement for most college attendance, we see higher rates of college attendance for categories of youth with higher rates of high school graduation (see Chapter 5 for a detailed analysis of secondary school completion). For example, 2- and 4-year college attendance was highest for youth who were classified as visually impaired or deaf, categories of youth with relatively high graduation rates. Among exiters with visual impairments, 14% had attended a 4-year college and 8% had attended a 2-year college within 2 years of leaving secondary school. Among those classified as deaf, the rates were 9% and 13%, respectively. Two-year college attendance rates were comparably high for those classified as hard of hearing or speech impaired (12%). Four-year college attendance was negligible for most other categories of youth.

A further explanation for differences in college attendance rates by disability category may involve the responses of colleges to applications for admission by youth with disabilities. In a study of college admissions decisions, Willingham (1987) reports that students who were deaf were about 31% more likely to be admitted to colleges than students with comparable abilities who were not deaf, largely because of the propensity of deaf students to apply and be accepted for programs specifically for students with hearing impairments. In contrast, students with learning disabilities were found to be slightly less likely to be admitted to colleges than students with comparable entrance test scores who did not report having learning disabilities. These kinds of decisions may contribute to the relatively higher level of postsecondary school enrollment for deaf students and the relatively lower level for students with learning disabilities found in the NLTS.

The variability of postsecondary school attendance for youth in different disability categories means that the population of students with disabilities and the instructional challenges they present are very different in postsecondary schools than in secondary schools. Chapter 2 demonstrated, for example, that 56% of students with disabilities in secondary schools were classified by their schools as learning disabled; only 12% of postsecondary students reported having such disabilities. Conversely, in secondary schools, students classified as visually impaired were less than 1% of the special education student population, whereas they were 39% of postsecondary students who identified themselves as having disabilities (U.S. Department of Education, 1989).

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* Percentages for the types of schools attended by youth in each disability category are reported in Appendix D, Table D9-1.

A Comparison with Youth in the General Population

The overall rate of postsecondary school attendance among high school graduates with disabilities was significantly lower than the rate for graduates in the general population. Using data from the NLSY, we have constructed a comparison group of high school graduates from the general population of youth and a second comparison group of graduates who have the same distribution as youth with disabilities on head of household's education, age, ethnic background, and gender. (Note that dropouts and those aging out are not included in this analysis, resulting in a higher postsecondary enrollment rate in this analysis than was reported earlier for all exiters with disabilities.)

Table 9-1 compares rates of postsecondary school enrollment for graduates with disabilities and these two groups of graduates from the general population. The comparison includes graduates who were ages 15 to 20 and who had been out of high school between 1 and 2 years. We see that in the general population of youth, more than half (56%) of graduates had enrolled in a postsecondary school in the preceding year, compared with 22% of those with disabilities (p<.001). Even when differences in selected demographic characteristics are eliminated, 52% of youth in the comparison group had enrolled in postsecondary schools, a rate almost 2 1/2 times that of youth with disabilities (p<.001).

The differences between youth with disabilities and the comparison groups result entirely from differences in rates of college attendance (13% vs. 46% and 50%; p<.001); rates of vocational/trade school attendance were virtually identical (between 8% and 11%). We also see that the differences between youth with disabilities and others did not hold for all categories of youth. Youth with speech, visual, or hearing impairments, for example, were not significantly different in their rates of attendance at postsecondary schools than youth in either the general or the comparison population. However, youth with learning disabilities, emotional disturbances, or mental retardation were significantly less likely to have attended any postsecondary school in the previous year and dominated the rate for youth with disabilities as a whole.

Table 9-1

A COMPARISON OF THE POSTSECONDARY SCHOOL ENROLLMENT OF GRADUATES WITH DISABILITIES AND THE GENERAL POPULATION OF YOUTH

			Youth with Disabilities								
				Primary Disability Category							
Postsecondary Enrollment	General Population of Youth	Comparison† Population of Youth	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired
Percentage enrolled in any post-secondary school in preceding year	55.7 (1.0)	52.1 (1.0)	22.5 (4.2)	23.1 (5.8)	17.9 (10.0)	48.4 (10.0)	8.1 (5.5)	67.5 (10.5)	51.0 (11.8)	47.2 (13.6)	37.8 (10.4)
Percentage enrolled in 2-year or 4-year college in preceding year	50.1 (1.0)	45.9 (1.0)	12.6 (3.4)	12.5 (4.6)	13.8 (9.0)	38.4 (9.7)	0.0 (.0)	65.5 (10.6)	49.6 (11.8)	25.4 (11.9)	9.6 (11.9)
Percentage enrolled in vocational or trade school in preceding year	7.6 (.6)	8.3 (.6)	10.8 (3.2)	11.7 (4.4)	6.8 (6.5)	10.0 (6.0)	8.1 (5.5)	3.0 (3.8)	1.4 (2.8)	24.2 (11.9)	10.1 (6.5)
N	5,100	5,100	442	90	30	45	44	60	44	46	53

Notes: Standard errors are in parentheses.

"All conditions" includes youth in all 11 disability categories; data are reported separately fonlyor categories with at least 30 graduates.

† Youth from the general population with demographic characteristics similar to youth with disabilities.

Source: General and comparison populations are from the National Longitudinal Survey of Youth (see Appendix A).
NLTS data are from parent interviews.

Who Went to Postsecondary Schools?

What kinds of students with disabilities chose to pursue postsecondary education? We have seen important differences between youth with different kinds of disabilities and suggested that high school completion relates to those differences. However, the conceptual framework of transition experiences and outcomes discussed in Chapter 1 and the analyses presented in earlier chapters of this volume suggest a number of other factors that may influence secondary school students with disabilities to participate in postsecondary education. These relate to the individual, household, and community characteristics of youth and to their high school experiences, as highlighted in Figure 9-3. We first present bivariate relationships between postsecondary enrollment and these characteristics. Because many of the characteristics are interrelated, we follow this presentation with results of multivariate analyses of postsecondary enrollment.

Disability Characteristics

Differences in the rates of enrollment in postsecondary schools for youth in different disability categories in part reflect their varying levels of functional skills and measured intellectual abilities. Clearly, the challenges of postsecondary education would be more easily met by youth who performed self-care and basic functional mental tasks well.

Table 9-2 shows that rates of participation were significantly higher for youth with higher self-care and functional mental skills and higher measured IQ.* For example, students who scored medium or high on the self-care scale were more likely to participate in postsecondary education (12% and 15%, respectively) than students who scored low (2%; p<.05). Similarly, students who had high functional mental skills were more likely to participate than those with medium (18% vs. 10%) or low abilities (6%; p<.01). The average IQ score of students who had enrolled in postsecondary schools (89) was higher than for students who had not enrolled (84; p<.01). This relationship generally holds true regardless of disability category; students who went on to postsecondary schools tended to be those at the higher end of the IQ distribution in each disability category. Further, NLTS data suggest that students with disabilities who took courses from 4-year colleges were more intellectually capable than students with disabilities who attended other postsecondary schools. For example, the average IQ score was 87 for students at vocational/trade schools, 94 for 2-year college students, and 98 for students at 4-year colleges (p<.01).

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* Because the percentage of students enrolled in more than one kind of school is so small, subsequent analyses consider the rate at which students enrolled in each kind of school separately; hence those with dual enrollments are included in the analysis of each kind of school in which they were enrolled. See Appendix C for definitions of functional scales.

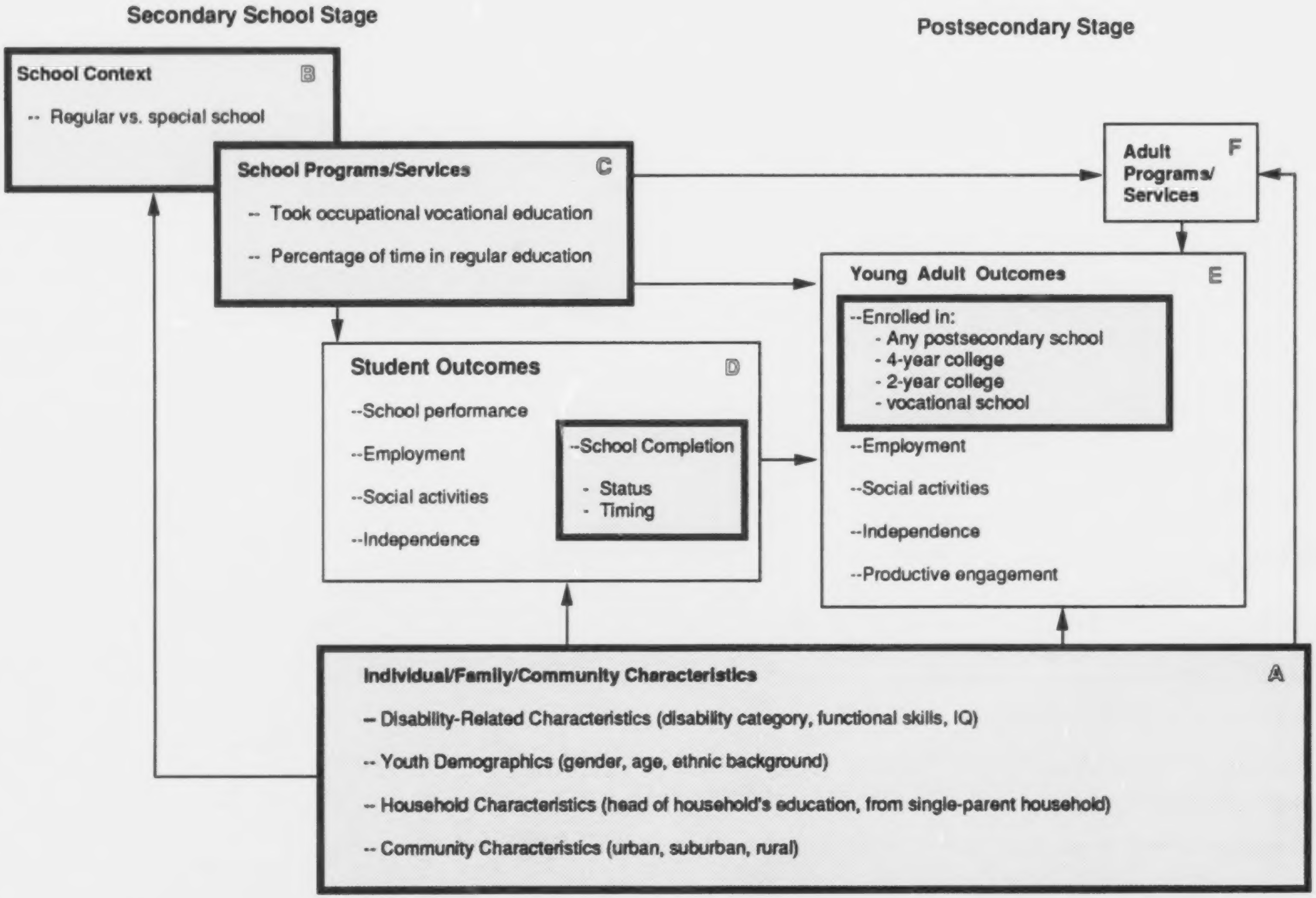
Secondary School Stage
Postsecondary Stage
School Context B
-- Regular vs. special school
School Programs/Services C
-- Took occupational vocational education
-- Percentage of time in regular education
Adult Programs/ Services F
Young Adult Outcomes E
--Enrolled in:
- Any postsecondary school
- 4-year college
- 2-year college
- vocational school
--Employment
--Social activities
--Independence
--Productive engagement
Student Outcomes D
--School performance
--Employment
--Social activities
--Independence
--School Completion
- Status
- Timing
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background)
-- Household Characteristics (head of household's education, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 9-3 HYPOTHESIZED RELATIONSHIPS OF YOUTH, HOUSEHOLD, COMMUNITY, AND SCHOOL FACTORS TO ENROLLMENT IN POSTSECONDARY SCHOOLS

Table 9-2

VARIATIONS IN POSTSECONDARY SCHOOL ENROLLMENT BY DISABILITY-RELATED CHARACTERISTICS

	Percentage Enrolling in the Past Year in:				
Ability Measures	Any Post-secondary School	4-Year College	2-Year College	Vocational or Trade School	N
Self-care ability scale score†					
Low (3-6)	1.5	.0	1.6	.0	75
	(3.1)	(.0)	(3.1)	(.0)	
Medium (7-10)	11.5	1.1	2.5	7.9	263
	(4.8)	(1.6)	(2.3)	(4.0)	
High (11-12)	15.3	1.4	4.3	9.6	1,721
	(1.8)	(.6)	(1.0)	(1.5)	
Functional mental skills scale score†					
Low (4-8)	5.8	.6	.0	5.1	187
	(3.5)	(1.1)	(.3)	(3.3)	
Medium (9-14)	9.7	.3	3.2	6.3	707
	(2.5)	(.4)	(1.5)	(2.1)	
High (15-16)	18.2	1.9	5.1	11.1	1,168
	(2.4)	(.9)	(1.4)	(2.0)	
IQ score					
<74	8.3	.2	1.5	6.6	468
	(2.2)	(.4)	(1.0)	(2.0)	
75-90	16.3	1.3	4.5	10.5	735
	(3.1)	(.8)	(1.7)	(2.5)	
91-110	19.4	2.0	5.4	12.0	642
	(3.8)	(1.3)	(2.2)	(3.1)	
>110	13.4	4.5	6.4	86.6	291
	(5.0)	(3.0)	(3.5)	(5.0)	

Note: Standard errors are in parentheses.

† See Appendix C for definitions of these scales.

Source: Parent interviews and students' school records.

Individual, Household, and Community Characteristics

Chapter 2 demonstrated that youth with disabilities were disproportionately likely to be black, poor, from urban areas, and from single-parent households, factors sometimes associated with lower rates of postsecondary school enrollment, particularly collegiate enrollment. Table 9-3 presents data from the NLTS that partially support such relationships.

There were few significant differences in overall postsecondary education participation rates for youth with different individual characteristics. For example, male and female high school exiters were about equally likely to have attended postsecondary schools in their first 2 years

Table 9-3

VARIATIONS IN POSTSECONDARY SCHOOL ENROLLMENT BY INDIVIDUAL AND HOUSEHOLD CHARACTERISTICS

	Percentage Enrolling in the Past Year in:				
	Any Post-secondary School	4-Year College	2-Year College	Vocational or Trade School	N
Individual characteristics					
Age					
17 or 18	11.1	.4	2.1	10.8	404
	(3.3)	(.6)	(1.6)	(3.5)	
19 or older	16.0	1.7	5.3	10.3	1,935
	(1.9)	(.7)	(1.2)	(1.6)	
Gender					
Male	15.0	1.0	4.8	11.0	1,463
	(2.0)	(.6)	(1.3)	(1.9)	
Female	13.0	2.5	3.3	8.4	917
	(2.7)	(1.3)	(1.5)	(2.3)	
Ethnicity					
White	13.6	1.7	4.6	9.0	1,523
	(2.0)	(.8)	(1.3)	(1.7)	
Black	15.3	.2	2.8	14.2	553
	(3.6)	(.5)	(1.7)	(3.7)	
Hispanic	18.9	4.0	6.3	9.2	193
	(8.0)	(4.0)	(5.1)	(6.1)	
Household Characteristics					
Head of household's highest education					
No high school diploma	10.6	.8	2.0	8.6	788
	(2.4)	(.7)	(1.1)	(2.3)	
High school graduate	14.6	1.2	4.1	10.9	783
	(2.9)	(.9)	(1.7)	(2.7)	
Beyond high school	22.3	3.7	9.8	11.6	700
	(4.2)	(1.9)	(3.1)	(3.3)	
Annual household income					
Under $12,000	9.4	.1	1.6	8.6	521
	(2.9)	(.3)	(1.3)	(2.9)	
$12,000 to $24,000	12.9	1.1	3.4	10.4	664
	(3.0)	(.9)	(1.7)	(2.8)	
25,000 or more	21.0	2.9	9.3	10.6	922
	(3.2)	(1.3)	(2.3)	(2.5)	
Youth was from:					
Single-parent household	12.3	.6	3.9	9.1	828
	(2.6)	(.6)	(1.6)	(2.4)	
Two-parent household	15.9	2.2	4.8	10.6	1,598
	(2.1)	(.8)	(1.3)	(1.8)	

Note: Standard errors are in parentheses.

Source: Parent interviews.

out of high school (15% and 13%). Similarly, there were no significant differences between youth who were white (14%), black (15%), or Hispanic (19%) in the rates at which they enrolled in postsecondary schools. We also note that the type of postsecondary school attended was not significantly related to students' gender or ethnicity.

However, we find significant differences in postsecondary educational enrollment related to the socioeconomic status of youth. As demonstrated in Table 9-3, youth from households with higher incomes were significantly more likely to have attended postsecondary schools. The postsecondary education enrollment rate was 9% for students from households with an annual income of less than $12,000, but 21% for those from households with incomes of $25,000 or more (p<.01). There were no significant differences in postsecondary enrollment rates for youth who lived in urban, suburban, or rural areas overall or by type of postsecondary school attended.

Secondary School Factors

The discussion above demonstrates the relatively low rates at which youth with disabilities accessed postsecondary education shortly after high school. However, there were important differences between youth in different disability categories in the rates at which they made the transition to further education and training and in the types of schools they attended. Did some secondary school experiences provide a platform or springboard for greater participation in postsecondary education or influence the types of schools attended? Figure 9-3 suggests a variety of school factors that are hypothesized to relate to postsecondary school enrollment; those relationships are presented in Table 9-4.

As suggested earlier in this chapter, one of the central aspects of secondary school experiences that appear to affect the postsecondary school enrollment choices of youth with disabilities was their high school completion status. Table 9-4 depicts the postsecondary enrollment rates of students who left high school by graduating, dropping out, and aging out. Because high school graduation is a common prerequisite for many forms of postsecondary education, it is not surprising that the postsecondary school enrollment rate was significantly higher for high school graduates with disabilities (21%) than for dropouts (5%) or ageouts (13%; p<.05). This relationship is apparent, regardless of primary disability category. For example, among youth with learning disabilities, 22% of those who graduated attended a postsecondary school, compared with 26% of those who aged out but only 4% of those who dropped out. Similarly, among youth classified as deaf, 40% of graduates and 33% of those who aged out attended a postsecondary school, compared with 11% of those who dropped out.

Also not surprisingly, of postsecondary students with disabilities who dropped out of high school, virtually all were enrolled in vocational/trade schools. Hence, the likelihood of youth with disabilities taking advantage of the potential benefits of postsecondary education or training, particularly a collegiate education, was much higher if they successfully completed high school.

Table 9-4

VARIATIONS IN POSTSECONDARY SCHOOL ENROLLMENT BY SECONDARY SCHOOL FACTORS

	Percentage Enrolling in the Past Year in:				
	Any Post-secondary School	4-Year College	2-Year College	Vocational or Trade School	N
School completion status					
Graduate	21.0	2.6	5.9	13.3	1,503
	(2.4)	(.9)	(1.4)	(2.0)	
Dropout	5.2	.0	1.3	5.2	543
	(1.9)	(.0)	(1.1)	(2.2)	
Ageout	12.6	.9	4.6	7.6	443
	(3.0)	(.9)	(1.9)	(2.4)	
Percentage of time spent in regular education classes					
0% to 33%	8.6	1.2	2.0	6.8	711
	(2.4)	(.9)	(1.3)	(2.3)	
34% to 66%	17.8	1.3	2.4	16.4	206
	(5.4)	(1.6)	(2.2)	(5.4)	
67% to 99%	21.0	1.9	9.0	13.8	279
	(4.8)	(1.6)	(3.5)	(4.2)	
100%	21.5	2.9	7.1	12.7	316
	(5.8)	(2.4)	(3.8)	(4.9)	
Youth took occupationally oriented vocational education in last secondary school year					
Yes	18.2	1.3	5.3	13.5	1,188
	(2.7)	(.8)	(1.6)	(2.5)	
No	9.6	1.6	3.4	6.0	1,016
	(2.0)	(.8)	(1.3)	(1.7)	
Youth attended:					
Regular secondary school	15.0	1.5	4.6	10.8	1,547
	(1.9)	(.6)	(1.2)	(1.7)	
Special school	11.2	1.1	2.4	9.8	545
	(3.6)	(1.2)	(1.8)	(3.6)	

Note: Standard errors are in parentheses.

Source: Parent interviews.

Other school experiences also relate to the likelihood that youth with disabilities went on to postsecondary schools. The extent to which students were mainstreamed in high school is one such school experience. Postsecondary school enrollment of students who were mainstreamed for one-third of their instructional time or less (9%) was significantly lower than for students mainstreamed for at least two-thirds of their class time (21%; $p<.05$). In addition, students who had occupationally oriented vocational education in high school were more likely to enroll in postsecondary schools (18%) than those who had no such training (10%; $p<.05$). However, we learned in Chapter 5 that the likelihood of students' being mainstreamed and of taking occupational training was related to the nature and severity of their disabilities, making these bivariate relationships difficult to interpret. Was it the secondary school programs or the generally milder disabilities of the students in them that related to greater postsecondary school enrollment? Identifying the independent relationships of these kinds of correlated variables to postsecondary education enrollment requires a multivariate analysis.

Multivariate Analyses of Factors Related to Enrollment in Postsecondary Schools

To examine further the postsecondary school enrollment of students with disabilities, we performed a series of logit analyses with dependent variables indicating whether youth had enrolled in any postsecondary schools and in each of the three types of schools (4-year college, 2-year college, vocational/trade school).[*] The independent variables include the individual, household, community, and school characteristics depicted earlier in Figure 9-3 and discussed previously. Results of the multivariate analysis of postsecondary school enrollment are presented in Table 9-5, which reports the estimated change in the rate of enrollment associated with each variable. Actual coefficients are reported in Appendix D, Table D9-4.

All four multivariate models are statistically significant. However, it is interesting to note that the amount of variation in enrollment explained by the analyses (indicated by the χ^2 value) is highest for analyses of enrollment in any postsecondary school and for enrollment in 4-year colleges. Apparently, the factors we have considered are less important in differentiating students who enrolled in junior colleges and vocational schools than they are in distinguishing 4-year college students. This is consistent with research for the general population of youth. Hearn (1988), using data from the High School and Beyond study of 1980 high school seniors, shows that broadening the definition of postsecondary education from attendance at 4-year colleges to attendance at 2-year and vocational schools reduces the relationship of family background factors to enrollment. Apparently, among youth with disabilities, the effects of disability-related factors similarly diminish when a broader view of postsecondary education is taken.

The greater explanatory power of the analysis of 4-year college attendance results from the fact that college enrollment had stronger relationships to disability-related characteristics than

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[*] Appendix Tables D9-2 and D9-3 present the unweighted means and correlations of independent variables to postsecondary school enrollment for the full population of students and for those in the multivariate analyses. There were five marked and related differences in these statistics between the two samples of youth. The multivariate analysis subsample lost about half of the students who attended special schools because no school records were made available to the NLTS for them (school records were the source of data on occupational training and mainstreaming). Eliminating these students from the model reduced the percentage of students who aged out of school and who had been out of school more than 1 year; it increased the percentage who had taken occupational training and graduated from high school. However, correlations between the affected variables and the dependent variables are virtually identical for both samples, indicating that the relationships examined are not likely to have been affected by the selective elimination of some kinds of students.

Table 9-5

FACTORS RELATED TO ENROLLMENT IN VARIOUS KINDS OF POSTSECONDARY SCHOOLS

	Change in Estimated Probability of Going to:				
Characteristics	Any Post-secondary School	4-Year College	2-Year/ Junior College	Trade/ Vocational School	For Increment
Disability characteristics					
Disability category[†]					
Emotionally disturbed	-7.2	2.9	.2	-6.6	Emotionally disturbed vs. learning disabled
Speech impaired	-.2	3.9	4.5	-7.2	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-9.5	-8.6***	-9.5	-7.2	Mentally retarded vs. learning disabled
Visually impaired	4.7	37.8***	-.8	-10.4	Visually impaired vs. learning disabled
Hard of hearing	-7.7	-10.6	-2.5	-7.5	Hard of hearing vs. learning disabled
Deaf	9.3	32.0***	2.0	-4.9	Deaf vs. learning disabled
Orthopedically impaired	-.0	10.0	7.1	-11.4	Orthopedically impaired vs. learning disabled
Other health impaired	-6.8	-.2	-1.4	-7.2	Other health impaired vs. learning disabled
Severely impaired (e.g., multiply handicapped, deaf/blind)	-6.6	25.0	2.6	-12.2	Severely impaired vs. learning disabled
Functional mental skills	1.5	-2.0	.4	2.6	High (16) vs. medium (12)
Self-care skills	2.5	-.6	3.2	-9.1	High (11) vs. medium (8)
IQ	3.2	5.1***	.9	-9.2	100 vs. 80
Individual characteristics					
Youth's age	-3.0	-4.5	2.1	-1.9	20 vs. 18
Youth was male	2.9	-1.9	.9	3.2	Male vs. female
Youth was minority	.8	-4.2	2.0	3.8	Minority vs. nonminority
Household characteristics					
Head of household's education	10.0***	3.6*	6.7***	.8	Some college vs. high school dropout
Youth was from single-parent household	2.6	1.2	3.1	-1.2	Single- vs. two-parent household
Community characteristics					
Youth lived in:					
Urban area	3.2	5.4*	3.2	-1.9	Urban vs. suburban
Rural area	-2.4	-.9	-3.6	1.5	Rural vs. suburban
School factors					
Youth was high school graduate	13.5**	19.9***	8.1	3.6	High school graduate vs. dropout
Youth aged out of high school	8.2	29.9***	-5.7	3.8	Aged out vs. dropped out
Youth out of high school 1 to 2 years	9.3**	23.8***	5.8*	-5.8**	Out of school 1-2 years vs. <1 year
Youth took occupationally oriented vocational education in last year in high school	12.2***	.4	3.4	7.5**	Yes vs. no
Percentage of time spent in regular education in last year in high school	4.7*	4.6***	4.7**	-1.4	6 classes vs. 3 classes
Youth attended special secondary school	15.5	-2.9	12.1	6.2	Special school vs. regular school
χ^2	131.5	166.4	99.9	54.0	

N = 471

[†] Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analyses purposes than for descriptive analysis reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

did measures of 2-year or vocational school enrollment. For example, students classified as deaf and those with visual impairments were significantly more likely to have attended 4-year colleges than youth with learning disabilities, other factors being equal. A higher measured IQ also was significantly related to a higher probability of 4-year college attendance. No such significant independent relationships were found for these factors in analyses of 2-year college and vocational/trade school enrollment. The fact that few of the variables we examined were powerfully related to junior college or vocational school enrollment suggests that students' choices of those kinds of postsecondary schools appear largely to have been based on factors not included in our analyses.

The relationships between college attendance (both 4-year and 2-year) and socioeconomic status for students with disabilities are significant and similar to those found in research on students in the general population. For example, among students with disabilities, those coming from households whose head had at least some college education were estimated to be 10 percentage points more likely to have enrolled in some kind of postsecondary school than youth from households whose head was not a high school graduate. Students living in urban areas were more likely to have attended a 4-year college than other students, other factors being equal. Student's age, gender, and ethnicity were not related to postsecondary school enrollment, independent of other factors in the analyses.

Looking across the independent variables included in these analyses, it is heartening to note the relative strength of school factors in explaining postsecondary education choices. Five of the six school factors included in the analyses were significantly related to whether youth enrolled in postsecondary schools. As demonstrated in earlier tables, graduating from high school was powerfully associated with going on to further education, largely because of its strong relationship with 4-year college attendance. For example, graduates were estimated to be 20 percentage points more likely to have gone on to a 4-year college than were dropouts, other factors being equal. However, somewhat surprisingly, aging out of high school had a similar association with higher postsecondary school enrollment when ageouts were compared with dropouts, controlling for disability-related and other characteristics.

The timing of secondary school leaving also had a significant independent relationship to postsecondary school enrollment that did not appear in bivariate relationships. Table 9-5 demonstrates that students who had been out of secondary school between 1 and 2 years were significantly more likely to have attended each kind of school than students who left high school within the preceding year. The rates of postsecondary school enrollment were virtually identical for the two groups of students in bivariate analyses because of the confounding of severity of disability and the timing of school leaving. Students who were 21 years old when the NLTS sample was selected (the 1985-86 school year) had aged out of school between 1 and 2 years earlier by the time data were collected in 1987. These generally more severely impaired students apparently depressed postsecondary school enrollment rates for that group, making them generally equal to rates for students who had left school within the preceding year. When disability factors were controlled for in multivariate analyses, we see that students who had had more time to pursue their postsecondary education had done so with greater frequency than students who had been out of secondary school a shorter time.

Students who spent a greater percentage of their instructional time in regular education classes were significantly more likely to have enrolled in postsecondary schools in general, and in 4-year and 2-year colleges in particular, than were students who were mainstreamed for a smaller proportion of time, independent of their disability characteristics. For example, students who were mainstreamed for six classes were estimated to be 5 percentage points more likely to have attended a 2-year college than students mainstreamed for only three classes, other factors being equal. Perhaps this relationship results from students in mainstreamed classes earning more credits in curricular areas that were prerequisites for postsecondary education (e.g., sciences, mathematics, foreign language), which would aid their transition to further education after high school. Or perhaps students in mainstreamed classes were more exposed to the academic expectations common to students without disabilities and, therefore, were more likely to have aspired to postsecondary education and worked toward that end. Alternatively, students in mainstreamed classes may have been more capable students in ways other than those measured and controlled for in these analyses.

Finally, the relationship we observed in earlier tables between taking occupationally oriented vocational education and postsecondary school enrollment is confirmed in multivariate analyses. Controlling for other factors, students who had occupationally specific training in their last year in secondary school were estimated to be 12 percentage points more likely later to have enrolled in a postsecondary school. This relationship results largely from the positive relationship between secondary vocational training and postsecondary vocational school enrollment. Perhaps students in secondary vocational programs were able to take advantage of cooperative relationships between secondary and postsecondary vocational schools, which would facilitate their transition to those schools.

As we have demonstrated in earlier chapters, examining the separate effects of specific independent variables can sometimes understate their full relationships to the outcome we are exploring because the independent variables can have indirect as well as direct effects. The relationship of taking occupationally oriented vocational education to postsecondary school enrollment is one such variable. We saw in Table 9-5 that students who had such training were significantly more likely to have enrolled in a postsecondary school than students without it. We also saw that students who graduated from high school were significantly more likely to have gone on to further education. In Chapter 5, we also learned that occupational training had a direct positive effect on students' persistence in school. Extrapolating its effects further, we now see that occupational training had both a direct effect on increasing the probability of postsecondary education and an indirect effect through increasing the probability that students graduated from high school.

To illustrate, we return to an example used in Chapters 4 and 5 of a group of students with characteristics that might put them at risk of poor transition outcomes: male, low-income students with learning disabilities attending regular schools in urban areas. We assume that these students had average functional skills and IQs for students in that disability category and, like most students with learning disabilities, they were older than the typical age for their grade level in high school, indicating that they had been retained at grade level earlier in their school careers. Earlier analyses showed that if these students had enrolled in occupational training in high school, their probability of dropping out of school was 6%. With the beneficial effects of both the occupational training and the increased probability of graduating, we estimate the probability of their enrolling in postsecondary education after high school to be 33%.

In contrast, let us suppose the students in our example did not include occupational training in their school programs. Without this training, they would be estimated to have higher absenteeism and a higher likelihood of failing courses than their peers who had taken vocational education. With this higher absenteeism and increased probability of course failure, their probability of dropping out was estimated to be 11%. The absence of occupationally specific training and the lower likelihood of graduating combine to yield an estimated probability of enrolling in postsecondary school of 18% for these youth, or 15 percentage points lower than their peers who had taken occupational vocational education.

Postsecondary Educational Experiences

Our interest in the postsecondary education of youth with disabilities extends beyond knowing whether they went on to school and who was enrolled. What were students' postsecondary school experiences like? Three aspects of the postsecondary educational experiences of students with disabilities are examined here. First, we consider the intensity with which postsecondary education students pursued their educations in the preceding year, as measured by the number of courses they took. Then we examine parents' reports of the overall grade point averages students had earned in postsecondary schools. Finally, we examine the extent to which postsecondary students had earned degrees or licenses from their work since high school.

Number of Courses Taken in the Previous Year

The average number of postsecondary courses taken in a year by youth with disabilities suggests that a majority of postsecondary students with disabilities were part-time students. Students with disabilities who attended postsecondary schools reportedly took an average of 4.5 courses in the previous year, as shown in Table 9-6. Course loads varied significantly by students' disability category. For example, students classified as deaf reportedly took 6.4 courses on average, compared with 4.3 courses for those classified as learning disabled (p<.01). These differences may relate to the types of schools attended by youth. Four-year college students averaged a significantly greater course load (6.4 courses) than did postsecondary vocational students (3.9 courses; p<.001) or 2-year college students (4.7 courses; p<.05). Students classified as deaf were more likely to have attended 4-year colleges, whereas more youth with learning disabilities attended vocational schools.

Table 9-6

AVERAGE NUMBER OF COURSES TAKEN AT POSTSECONDARY SCHOOLS IN THE PRECEDING YEAR BY STUDENTS WITH DISABILITIES

Disability Category	Average Number of Courses Taken in Preceding Year	S.E.	N
All conditions†	4.5	.4	424
Learning disabled	4.3	.5	74
Emotionally disturbed	4.5	.9	37
Speech impaired	5.0	.8	46
Visually impaired	5.7	.9	53
Hard of hearing	5.0	.8	52
Deaf	6.4	.8	57
Orthopedically impaired	5.3	.8	44

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† "All conditions" includes youth in all 11 disability categories. Data are reported separately only for those categories having at least 30 postsecondary students.

Source: Parent interviews.

Postsecondary Grade Point Average

In their courses, we find that students with disabilities were not doing as well as postsecondary students in the general population, as measured by grade point average. Parents of postsecondary students were asked "How well has he/she done in his/her classes or programs in the last 12 months?" Parents responded to seven categories ranging from "mostly As (3.75 to 4.00)" to "mostly Ds or below (1.25 or lower)." About 30% of postsecondary students with disabilities who were enrolled in graded courses reportedly earned a grade point average of 2.75 or higher. This compares with about 52% of youth in the general population who were sophomores in 1980 and reported their own grades in postsecondary education 4 years later (Jones et al., 1986).

Grade performance varied considerably for youth with different disabilities, although the small number of postsecondary students makes differences between categories not statistically significant. As shown in Table 9-7, students with sensory and orthopedic impairments were more likely than other students to have grade point averages that were mostly B or above. GPAs also varied by gender and ethnicity, although, again, the small number of cases does not support statistical significance, even though differences were quite large. For example, parents of 28% of female postsecondary students reported postsecondary GPAs of 3.25 or greater, compared with 12% of male students; only 12% of female students were reported to have GPAs of less than 1.75, compared with 26% of male students. Similarly for ethnicity, 17% of white students were reported to have GPAs of less than 1.75, compared with 44% of black students.

Table 9-7

GRADES EARNED IN THE PRECEDING YEAR BY POSTSECONDARY STUDENTS WITH DISABILITIES

Disability Category	Percentage of Postsecondary Students Earning Grade Point Average of: 3.25-4.00	2.75-3.24	2.25-2.74	1.75-2.24	<1.75	N
All conditions[†]	15.8	14.9	27.4	19.2	22.8	491
	(4.3)	(4.2)	(5.2)	(4.6)	(4.9)	
Learning disabled	15.1	10.7	29.7	23.3	21.2	74
	(6.5)	(5.6)	(8.2)	(7.6)	(7.4)	
Emotionally disturbed	14.2	18.9	15.7	21.3	29.8	48
	(7.3)	(8.2)	(7.6)	(8.5)	(9.5)	
Speech impaired	19.4	16.8	25.5	13.8	24.5	44
	(8.8)	(8.4)	(9.7)	(7.7)	(9.6)	
Visually impaired	36.3	10.0	24.3	11.2	18.2	68
	(11.1)	(6.9)	(9.9)	(7.3)	(8.9)	
Hard of hearing	33.6	13.2	20.1	22.1	11.0	54
	(11.0)	(7.9)	(9.3)	(9.7)	(7.3)	
Deaf	25.6	19.9	26.2	12.3	16.0	91
	(7.3)	(6.6)	(7.3)	(5.5)	(6.1)	
Orthopedically impaired	30.5	19.9	30.8	15.5	3.3	40
	(10.3)	(9.0)	(10.4)	(8.1)	(4.0)	

Note: Standard errors are in parentheses.

[†] Data for all conditions include youth in all 11 disabilities categories. Data are reported separately only for those categories having at least 30 postsecondary students.

Source: Parent interviews.

Students Who Earned Postsecondary Degrees, Licenses, or Certificates

A longer-term indicator of a successful postsecondary education is whether students completed the programs in which they enrolled. Most students with disabilities had not been out of high school or enrolled in postsecondary schools long enough to have completed most programs. However, we did find some students who had earned postsecondary degrees or licenses. About half of the vocational/trade school students had received a vocational/ technical certificate or license within 2 years of leaving high school. About 8% of 2-year college students had received a degree, certificate, or license within 2 years of leaving high school. No students had been out of high school long enough to have earned a 4-year college degree.

Despite the fact that female postsecondary students were reported to be taking as many courses as their male counterparts and appeared to be earning higher grades in their studies, they were significantly less likely to have earned a degree or license from their schooling than were males. For example, among vocational school students, 26% of females had earned a degree or license, compared with 57% of males ($p<.05$). A similar pattern is seen when comparing white students to minorities, although the small number of cases limits statistical significance; for example, 61% of white postsecondary vocational students had earned a degree or license, compared with 36% of black students and 12% of Hispanic students.

Trends in Postsecondary School Enrollment Over Time

One explanation for the relatively low level of postsecondary school enrollment of youth with disabilities in their first years out of high school may be that it simply took these youth longer to be ready to take on the challenges of additional education or training or to acquire the resources to pursue it. Data available from the 1987 National Postsecondary Student Aid Study show that postsecondary students with disabilities tended to be older than their nondisabled peers (U.S. Department of Education, 1989). Perhaps after trying out other postschool paths, including employment, postsecondary education would become more attractive or feasible and the rate of their participation in such programs would increase in later years.

To examine postsecondary school enrollment for students who had been out of school longer than the 2 years described thus far, we have used information from the NLTS exiter substudy for youth who had been out of secondary school between 2 and 4 years and who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly/moderately mentally retarded. As shown in Table 9-8, a greater percentage of those students had enrolled in postsecondary schools when they had been out of secondary school 2 to 3 and 3 to 4 years than had in earlier years. For example, 12% of youth who had been out of school between 1 and 2 years had enrolled in postsecondary schools in the preceding year; at the time those same students had been out of high school 3 to 4 years, 24% had been enrolled in a postsecondary school ($p<.05$) at some time since high school. Rates were higher in later years for youth in each category, except for those categorized as mildly/moderately mentally retarded, for whom postsecondary enrollment rates were generally lower and stable over time.

By 3 or 4 years after leaving high school, about 11% of high school exiters in the selected disability categories had been enrolled in vocational/trade schools since high school; almost 13% had been enrolled in 2-year colleges; and about 5% had attended 4-year colleges. The enrollment rate in vocational/trade schools for students in the exiter substudy was fairly stable over time. Collegiate enrollment was considerably higher 3 or 4 years after leaving high school than within the first 2 years of leaving high school. Only for students in the speech impaired category was the college enrollment rate 3 or 4 years after high school similar to earlier rates.

Of students who had enrolled in 4-year colleges or universities, approximately 80% were still working toward a 4-year degree. Of those who had enrolled in 2-year colleges, 53% had received a 2-year degree, certificate, or license or were still enrolled. Of the secondary school exiters who enrolled in vocational/trade schools, 67% had received a diploma, certificate, or license. Conversely, since enrolling in a postsecondary school after high school, about 33% of youth who enrolled in vocational/trade schools had dropped out; about 47% of those who had enrolled in 2-year colleges had dropped out; and 20% of those enrolled in 4-year colleges had done so.

Table 9-8

VARIATION IN ENROLLMENT IN POSTSECONDARY SCHOOLS BY LENGTH OF TIME SINCE HIGH SCHOOL FOR YOUTH IN SELECTED DISABILITY CATEGORIES

		Percentage Enrolled in Any Postsecondary School Among Youth Out of High School:			
Disability Category		<1 Year	1-2 Years	2-3 Years	3-4 Years
All four conditions		15.6 (3.1)	11.6 (2.9)	22.7 (3.6)	23.5 (3.8)
	N	403	430	376	408
Learning disabled		16.4 (4.7)	13.8 (4.4)	26.4 (5.6)	29.1 (5.7)
	N	138	169	142	171
Speech impaired		26.1 (8.8)	33.1 (11.2)	48.5 (10.1)	42.4 (11.9)
	N	65	42	66	41
Emotionally disturbed		16.9 (6.1)	15.0 (7.2)	23.1 (6.9)	25.0 (8.7)
	N	93	67	93	66
Mildly/moderately mentally retarded		11.5 (4.3)	2.9 (2.5)	9.3 (3.9)	7.0 (3.7)
	N	107	97	107	98

Note: Standard errors are in parentheses.

Source: Data for youth out of high school up to 2 years are from the 1987 parent interviews. Data for the same youth 2 to 4 years out of high school are from the 1989 exiter substudy parent/youth interviews.

Summary

The NLTS has generated the following findings concerning the postsecondary school enrollment of young people with disabilities:

- To what extent did youth with disabilities enroll in postsecondary schools in the early years after leaving secondary school and what types of postsecondary schools and programs did they attend? Overall, 14% of secondary school leavers who had been out of secondary school up to 2 years had enrolled in postsecondary schools in the preceding year. Vocational/trade schools were the most commonly attended postsecondary schools, with 9% of secondary school exiters having been enrolled in the preceding year. Almost 4% attended a 2-year or junior college, and 1% attended a 4-year college or university. Postsecondary enrollment rates were highest for youth who were classified as deaf or visually impaired (about one-third of youth) and lowest for youth classified as mentally retarded, multiply handicapped, or deaf/blind (fewer than 10%).
- How did the rates of postsecondary school enrollment for youth with disabilities differ from those of youth in the general population? Young people with disabilities were significantly less likely to have enrolled in postsecondary schools than students in the

general population. Using data from the NLSY, we find that 56% of students aged 15 to 20 in the general population had enrolled in a postsecondary school in the preceding year, compared with 22% of youth with disabilities of the same age. Even when selected demographic differences between the two populations were eliminated, the NLSY comparison group of youth was almost 2 1/2 times more likely to have gone on to further education after high school than were young people with disabilities. Differences between the groups resulted largely from the lower 2-year and 4-year college attendance rates of youth with disabilities.

- Who went to postsecondary schools? Although disability-related characteristics were significantly related to 4-year college attendance, as were measures of students' socioeconomic status, these factors were not significant predictors of other kinds of postsecondary school enrollment, indicating that 2-year colleges and vocational/trade schools were more accessible to a greater breadth of students. Youth with disabilities who graduated from high school enrolled in postsecondary schools at considerably higher rates than youth with disabilities who did not graduate (21% vs. 6%). The higher secondary school dropout rate for students in special education may partially explain their lower postsecondary school enrollment relative to students in the general population.

  Other school factors that were significantly related to greater postsecondary school enrollment included taking occupationally oriented vocational education and having spent a greater percentage of class time in regular education classes in students' last year in high school. These factors were significantly related to higher postsecondary school enrollment, independent of disability characteristics and other factors in multivariate analyses.

- How intensely did postsecondary students with disabilities pursue their education and how well did they do in terms of grades and program completion? Postsecondary students with disabilities largely were part-time students, averaging 4.5 courses in the preceding year. Course loads were higher for students attending 4-year colleges (6.4 courses) than for 2-year college or vocational students (4.7 and 3.9 courses). Postsecondary students with disabilities were reported by parents to have earned grades across the spectrum; 16% earned grade averages above B and 23% earned averages of D or below. Grades earned by students with disabilities were significantly below those reported by postsecondary students in the general population.

- What changes in the patterns of postsecondary education participation occurred with greater time out of secondary school? By 3 or 4 years after high school, more secondary school exiters with disabilities had attended a postsecondary school. Almost 1 in 4 students classified as learning disabled, emotionally disturbed, speech impaired, or mildly/moderately mentally retarded who were between 2 and 4 years out of high school had been enrolled in postsecondary schools since high school, compared with rates of 12% to 16% for the same students when they were out of high school 2 years or less. Only youth classified as mildly or moderately mentally retarded did not experience this increase in postsecondary school enrollment.

Hence, although postsecondary education was not a common experience for youth with disabilities as a whole, we note that their rate of enrollment at postsecondary schools was increasing as time passed since leaving high school, offering encouragement that greater numbers of youth will reap the benefits of further education and training.

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10 A BROADER LOOK AT OUTCOMES: ENGAGEMENT IN PRODUCTIVE ACTIVITIES AFTER SECONDARY SCHOOL

by E. Deborah Jay

One goal of education at the secondary level is to prepare students to make a successful transition to adult roles and responsibilities. This chapter is an effort to look at the concept of successful transition with a wider lens than has been used in much of the existing transition research. We examine what it means to be engaged in productive activities outside the home for youth who are disabled and have been out of school only a few years. We consider youth "productively engaged" when they are actively involved in working toward independence, to the extent that they are capable of it.

Transition research generally has looked at fairly specific outcomes. The most common is employment. For example, in a review of 27 follow-up or follow-along studies of youth with disabilities, Halpern (1987) found that 25 dealt with some aspect of employment, compared with 16 measuring residential arrangements and 10 examining postsecondary education. Recent studies of special education exiters have equated successful transition with vocational success and have focused on the relatively high rates of youth unemployment. This focus is not surprising, given that federal policymakers have stressed the importance of preparing persons with disabilities for socioeconomic independence. For example, the view of successful transition programming articulated by Will (1984) for the Office of Special Education and Rehabilitation Services (OSERS) stresses that "sustained employment represents an important outcome of education and transition for all Americans." The federal emphasis on employment may be due to the increasing costs of programs for persons with disabilities—as much as 8% of the GNP in recent years (Will, 1984)—and the expectation that employed persons will have a higher standard of living and accrue various other social and psychological benefits.

Several problems arise when we consider successful transitions only in terms of having paid jobs. First, the path toward independent living is more complex, involving choices about education, work, and marriage. Furthermore, because schooling is more likely to be an alternative to work for unemployed youth than for adults, youth unemployment may have a different meaning from adult unemployment. Wachter and Kim (1985) argue, "For most youths, and particularly for teenagers, the notion of unemployment and hence labor force [participation] is sufficiently flawed and is a weak statistic for policy purposes." They argue that "schooling can be viewed not only as a type of employment, involving general human capital training, but also as the preferred activity for many youth" and that "schooling should be treated on par with employment." Will (1984) recognized that "time-limited services" such as vocational rehabilitation, postsecondary vocational education, and other job training programs can be a bridge to employment, and advocated that special education for youth with disabilities "should lead to higher education, competitive work, or supported employment." Thus, evaluating the outcomes of special education in the first few years after secondary school requires that we examine rates of both employment and postsecondary education.

Second, employment is usually treated as a separate path from postsecondary education. However, employment and education are not either/or choices—some youth do both (e.g., national data on youth between the ages of 18 and 24 indicate that as many as half of college freshmen are working; Riche, 1990). More importantly for our purposes, some youth do neither. Because of the overlap between the two, postsecondary school enrollment rates cannot simply be added to employment rates to determine the extent of transition success (or, alternatively, the magnitude of failure).

For example, when looking at one or the other path, studies have found that special education exiters were having difficulty finding or keeping employment and that many were not in postsecondary education in the first years after leaving high school (Edgar, 1987; Edgar, Levine, and Maddox, 1986; Hasazi, Gordon, and Roe, 1985; Mithaug, Horiuchi, and Fanning 1985). Data from the NLTS analyzed in earlier chapters also demonstrate that many special education students who recently left high school were not working for pay or attending vocational schools or other postsecondary schools in the first years after leaving high school. Edgar (1987) is one of the few researchers who have examined postsecondary education and employment as a combined construct. Edgar collected information on postsecondary activity 6 months after secondary school for 368 special education students in the state of Washington who had left school during the 1984-1985 school year. Edgar's measure of engagement included employment (earning a salary on a weekly basis, including sheltered work) and schooling (attending training or education classes in a community college, vocational technical school, a 4-year college, or special training programs). Using this definition, he found that engagement rates were higher than employment rates for youth in most disability categories (e.g., 58% versus 52% for youth in the learning disabled/behavior disordered category).

Third, even when the focus is expanded to include postsecondary education, most studies of transition define employment and postsecondary participation rather narrowly. Voluntary work and supported employment often are not included in employment rates. The narrow focus on paid competitive employment fails to recognize the productive aspects of other kinds of work, particularly in-home work, which is engaged in largely by women. Some economists argue that all legitimate nonmarket work, including housekeeping and child rearing, should be considered employment. For example, Kalachek (1985) argues, "Most persons primarily engaged in important nonmarket activity are not unemployed by reasonable or standard criteria." Furthermore, rates of postsecondary education participation generally do not include attendance at schools to receive a GED or other forms of education and training (e.g., training provided by JTPA, on-the-job training) likely to enhance future productivity. Also, just as postsecondary education is likely to lead to future productivity, so are job search activities.

Fourth, most definitions of successful transition that focus on employment and/or postsecondary education fail to emphasize alternative, yet productive activities that are applicable specifically to youth with disabilities (e.g., attendance at a day-activity center). For example, the independent-living movement has stressed the importance of maximizing "the ability of disabled people to participate actively in society: to work, have a home, raise a family if they wish..." (Heumann and Wilkie, 1987). In contrast to Will's view of successful transition programming, Halpern (1986) has argued that "living successfully in one's community should be the primary target of transitional services." Mithaug (1983) also advocates a broad focus: transition programmers should examine not only occupational outcomes or independent living, but rather a variety of postschool adjustments.

To summarize, defining productive engagement in terms only of paid employment, or even expanding the definition to include postsecondary education, eliminates from consideration some pursuits that may be valued by and contribute importantly to the lives of the youth involved. In this chapter, we examine a variety of postschool activities that either are productive or are likely to lead to future productivity. Our concern is not with the particular path that youth chose (e.g., schooling, employment), but rather the extent to which youth who had left secondary school made successful transitions to productive activities, broadly defined.

Questions About Engagement

In this chapter, we create and analyze a measure of engagement that is similar to Edgar's measure in that it includes a variety of types of schooling and work activities outside the home. We focus on postsecondary engagement at two points in time for youth with disabilities who were no longer in secondary school. Data for youth 1 to 2 years after leaving secondary school are available for youth in all disability categories. In addition, data for youth 2 to 4 years after leaving secondary school are available from the NLTS exiter substudy for youth in selected disability categories (see Chapter 1 for a description of this substudy); they enable a first look at the extent of engagement in these later years after high school. In examining the concept of engagement, we focus on the following questions:

- To what extent did youth make the connection to employment, postsecondary education or training, or both shortly after leaving secondary school?
- What were the characteristics of youth with disabilities who became productively engaged in education- and work-related activity, and how did they differ from other exiters?
- Did engagement rates for youth with disabilities improve or decline over time? How dynamic was engagement?
- To what extent were youth with disabilities who were not engaged receiving services that could enhance their productivity in the future?
- To what extent were nonengaged youth having other types of positive experiences? What were the social experiences of engaged and nonengaged youth, and how did the two groups differ?
- To what extent were youth who were not employed or attending school participating in other types of productive activity (e.g., keeping house, taking care of children, looking for work)? What can be learned by expanding our conception of engagement? What proportion of youth were engaged when other definitions are used?

We address these questions in the remaining sections of this chapter.

Engagement in Education and Work Outside the Home

In this section, we examine the extent to which youth with disabilities were engaged in education or work outside the home 1 to 2 years after leaving secondary school. Youth were considered to be productively engaged if they had participated in one or more of the following activities during the preceding year (see Appendix C for details regarding variable construction):

Educational Activities

- Received training in specific job skills, like car repair or food service, from someone other than a family member. (The provider could include the youth's employer, an agency, or a postsecondary school.)
- Took courses to earn a high school diploma after leaving secondary school.
- Took courses from one or more of the following types of educational institutions: a vocational or trade school, a 2-year junior or community college, a 4-year college or university.

Work Activities

- Worked for pay, other than work around the house. (Employers could include a sheltered workshop.)
- Did volunteer work, not including work around the house.

As shown in Table 10-1, relatively small percentages of youth with disabilities who had been out of school for 1 to 2 years had participated in productive educational activities during the preceding year. About 10% had received training in specific job skills, like car repair or food service. Even smaller percentages of youth had taken courses to earn a high school diploma or attended a postsecondary school (2% to 8%). About 7 of 10 had held a paid job in the preceding year. Only 13% had done any volunteer work, not including work around the house, during the preceding year.

As mentioned earlier, these various activities are not either/or choices, and some overlap occurs. Table 10-2 presents findings regarding the extent to which youth were engaged in any of the activities included in Table 10-1. As shown in Table 10-2, more than 1 in 5 youth (23%) who had been out of school for 1 to 2 years had not been engaged in any of the specified work or educational activities during the preceding year. Fifteen percent had participated in both work and educational activities (although not necessarily at the same time). More than half (57%) had engaged in work activity only, whereas 5% had gone to school or received job skills training only. The overlap between employment and education is particularly interesting. Although only one-fifth (21%) of those who had worked during the preceding year also had received education or training, most (75%) of those who had enrolled in postsecondary schools had worked as well.

Table 10-1

PARTICIPATION IN VARIOUS EDUCATIONAL AND WORK ACTIVITIES 1 TO 2 YEARS AFTER SECONDARY SCHOOL

	Youth Out of Secondary School 1 to 2 Years		
Elements of Engagement	%[†]	S.E.	N
Youth engaged in the following productive educational activities in the preceding year:			
Training in specific job skills from someone other than a family member	10.1	2.0	1,242
Courses to earn a high school diploma after leaving secondary school	4.0	1.3	1,213
Courses from a:			
Vocational or trade school	8.2	1.9	1,188
2-year junior or community college	5.9	1.6	1,189
4-year college or university	2.1	.9	1,251
Youth engaged in the following productive work activities in the preceding year:			
Work for pay, other than work around the house (employers could include a sheltered workshop)	70.3	3.0	1,248
Volunteer work, not including work around the house	13.0	2.2	1,214

[†] Percentages do not sum to 100 because youth may have been engaged in more than one form of activity.

Source: Parent interviews.

Table 10-2

ENGAGEMENT DURING THE PREVIOUS YEAR BY YOUTH WITH DISABILITIES 1 TO 2 YEARS AFTER SECONDARY SCHOOL

	Youth Out of Secondary School 1 to 2 Years	
Nature of Engagement	%	S.E.
Nonengaged (no educational or work activities)	22.9	2.7
Engaged in:		
Work activities only	56.7	3.2
Educational activities only	5.1	1.4
Work and educational activities	15.3	2.3
Total engaged	78.1	2.7
N	1,297	

Source: Parent interviews.

As Figure 10-1 shows, among youth with disabilities 1 to 2 years after high school, education- and work-related engagement rates ranged from 87% for those classified as hard of hearing to 45% for youth with multiple handicaps. Youth with learning disabilities and those classified as deaf had comparatively high engagement rates (85% and 83%, respectively). In contrast, exiters with mental retardation or orthopedic impairments had comparatively lower engagement rates (65% and 60%, respectively). However, differences in engagement rates were statistically significant only between the disability groups with the highest and lowest engagement rates.

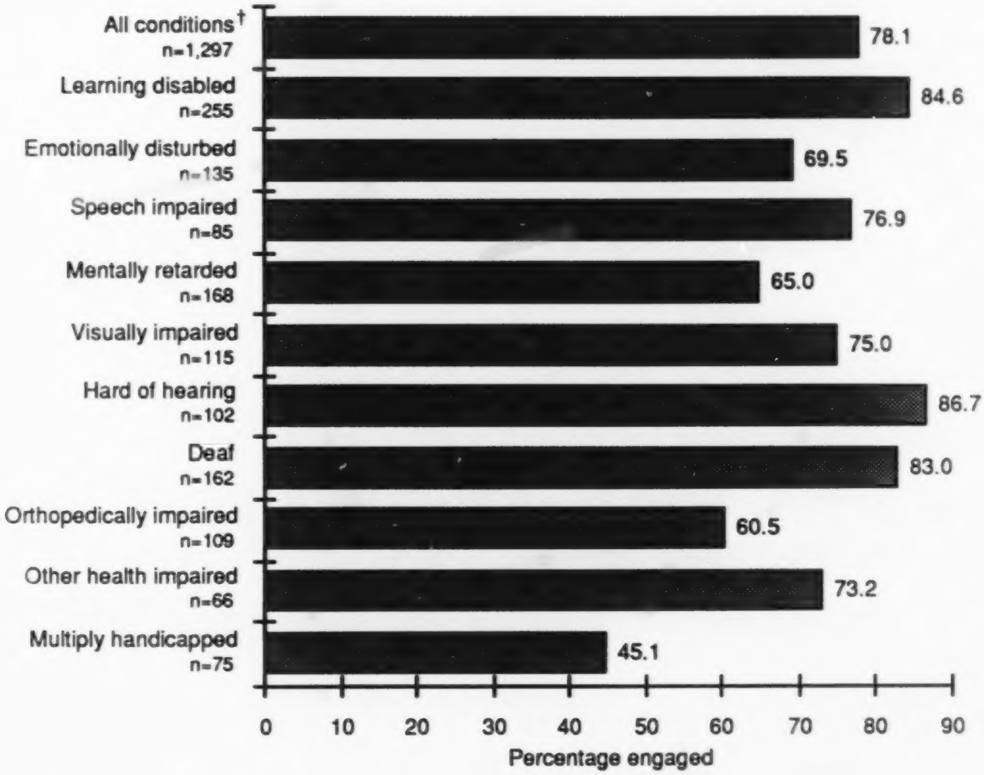

FIGURE 10-1 YOUTH ENGAGED IN PRODUCTIVE ACTIVITIES IN THE PRECEDING YEAR BY DISABILITY CATEGORY

† "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 cases.

Source: Parent interviews.

Who Became Engaged? Who Didn't?

Who were the youth who failed to become engaged in productive activities outside the home; who "fell through the cracks"? To formulate policies and programs that will contribute to successful transitions for greater proportions of youth with disabilities, we need to examine the characteristics of engaged youth and how they differed from those who failed to make the connection to work or education activities outside the home.

Most engaged exiters were working (96%), usually for pay (93%). Therefore, we would expect engaged exiters to have many of the same characteristics as youth who were employed. Conversely, we would expect the same types of youth who were underrepresented in the labor force to have comparatively low engagement rates.

The conceptual framework of the transition process presented in Chapter 1 suggests several categories of factors that may influence the outcomes of youth with disabilities after high school.

Figure 10-2 elaborates on this framework in the context of our analysis of engagement. One category of factors involves the individual characteristics of youth (Box A). Critical among those factors are youths' varying levels of functional abilities. We already have observed variation in engagement for youth in different disability categories. However, the disability classifications discussed above represent youth with a wide range of functional abilities. Therefore, in this section we examine further the relationship of functional ability to engagement. Other individual, household, and community characteristics are then considered (e.g., gender, marital status, minority status, age, household income). Finally, Figure 10-2 suggests that school experiences may relate to engagement after high school. Secondary school completion (Box D) and characteristics of youths' secondary schools and school programs (Boxes B and C) are also examined.

We first present tables showing the way levels of engagement vary for young people with these different characteristics. However, because disability and demographic differences and school programs are complex and may be explained by a variety of factors (e.g., ability, access, roles, and expectations), we conclude the section by examining the interrelationships of the various factors in a multivariate analysis of engagement.

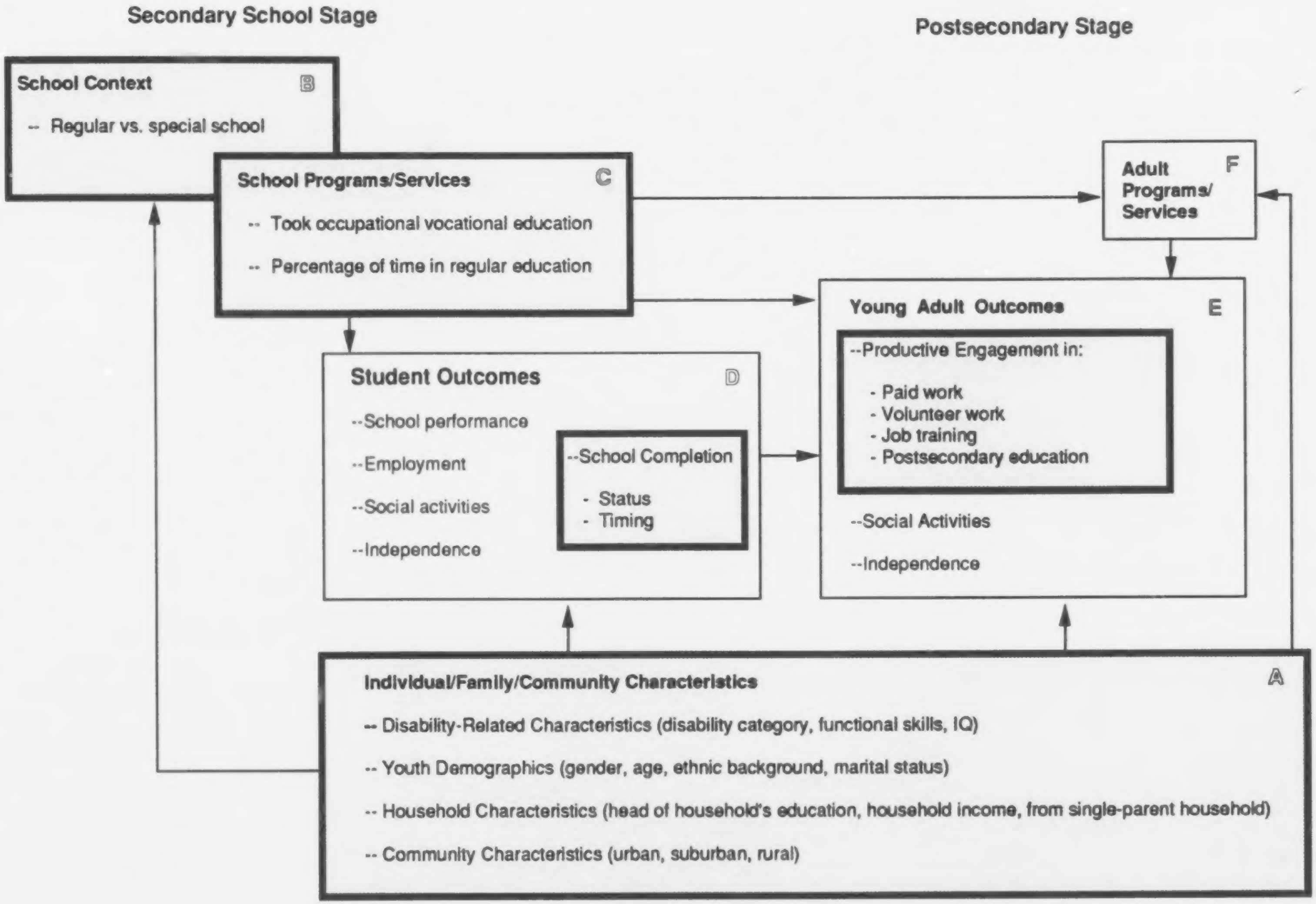
Secondary School Stage
Postsecondary Stage
School Context B
-- Regular vs. special school
School Programs/Services C
-- Took occupational vocational education
-- Percentage of time in regular education
Adult Programs/ Services F
Young Adult Outcomes E
--Productive Engagement in:
- Paid work
- Volunteer work
- Job training
- Postsecondary education
--Social Activities
--Independence
Student Outcomes D
--School performance
--Employment
--Social activities
--Independence
--School Completion
- Status
- Timing
Individual/Family/Community Characteristics A
-- Disability-Related Characteristics (disability category, functional skills, IQ)
-- Youth Demographics (gender, age, ethnic background, marital status)
-- Household Characteristics (head of household's education, household income, from single-parent household)
-- Community Characteristics (urban, suburban, rural)

FIGURE 10-2 HYPOTHESIZED RELATIONSHIPS OF YOUTH, HOUSEHOLD, COMMUNITY, AND SCHOOL FACTORS TO ENGAGEMENT IN PRODUCTIVE ACTIVITIES AFTER SECONDARY SCHOOL

Disability Characteristics

Theory and research suggest that levels of mental and physical functioning are important determinants of successful transition to adult life (e.g., Edgar, 1987; Edgar, Levine, and Maddox, 1986; Hasazi, Gordon, and Roe, 1985). Figure 10-3 describes for youth in all categories the relationship between engagement in education and work-related activity and two measures of functional ability constructed from parent reports[*]: (1) a self-care ability scale measuring youths' abilities to dress themselves, feed themselves, and go places outside the home, and (2) a functional mental skills scale measuring youths' abilities to look up telephone numbers and use the phone, tell time on a clock with hands, read and understand common signs, and count change.

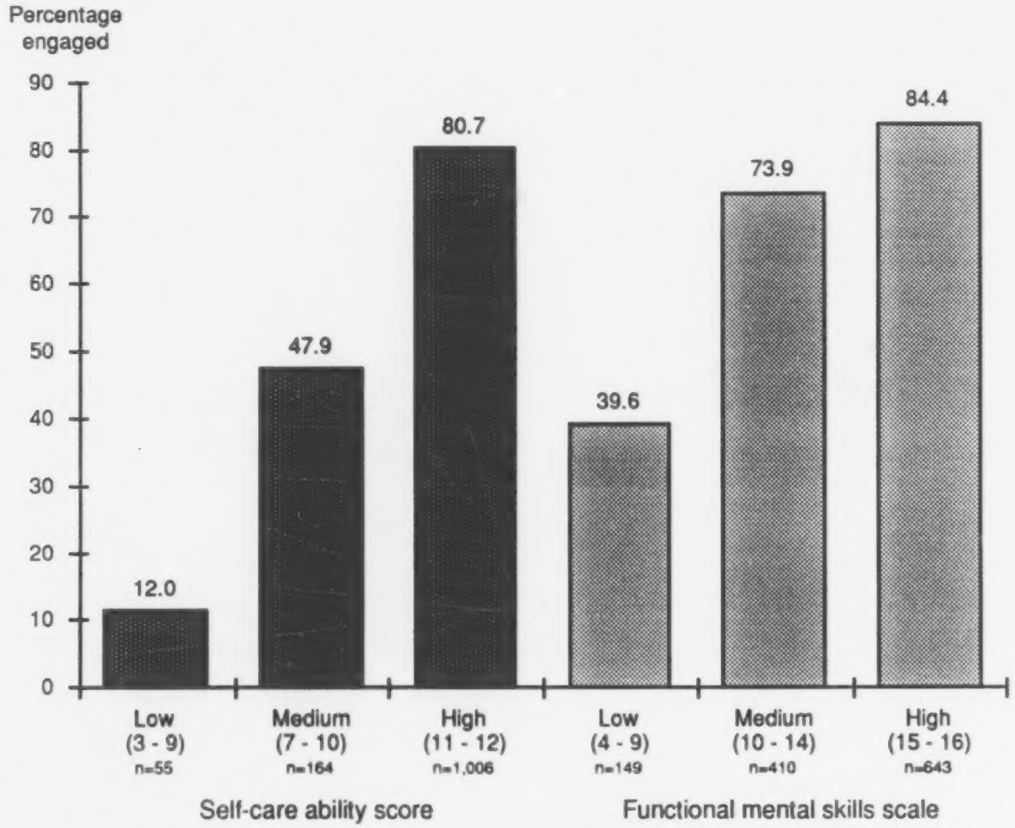

FIGURE 10-3 VARIATIONS IN ENGAGEMENT RATES BY FUNCTIONAL ABILITIES

Source: Parent interviews.

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[*] A description of how these scales were constructed is provided in Appendix C.

Youth with low scores on each of these measures were significantly less likely to have been productively engaged in education- or work-related activity during the preceding year than were youth with medium or high scores. The difference in productive engagement was particularly dramatic between exiters with low self-care ability relative to those with high self-care ability (12% vs. 81%; p<.001). Inability to care for oneself physically appeared to be more of a barrier than low functional mental skills. Nevertheless, youth with low scores on the mental skills scale also were far less likely to have participated in educational or work activity than those with medium or high scores (40% vs. 74% and 84%; p<.001). This difference also was reflected in the lower mean IQ of nonengaged youth relative to engaged youth (66 vs. 84; p<.01).

Because very few disability categories had youth distributed across the full range of the functional ability scales (e.g., few youth with learning disabilities scored low and few youth with multiple handicaps scored high), we cannot look systematically at functional differences within each disability category. However, the mentally retarded category did have fairly broad dispersion of youth with various functional abilities, and findings for this group suggest that functional levels continued to be powerfully related to engagement, even among youth with the same disability. For youth with mental retardation, more than twice as many exiters with high self-care ability were engaged as those with low to medium self-care ability (72% versus 32%; p<.001). Similarly, 71% of youth with mental retardation and medium to high functional mental skills were engaged, compared with 43% of those with low functional mental skills (p<.05).

Individual, Household, and Community Characteristics

Individual, household, and community characteristics are indicators of values, experiences, skills, and opportunities that can affect a youth's likelihood of being engaged. Other studies of youth with disabilities (e.g., Hasazi, Gordon, and Roe, 1985) and analyses of NLTS data in previous chapters have found employment and postsecondary participation rates to vary by gender, minority status, age, and family background. In this section, we examine the extent to which youth with different personal characteristics were engaged in productive activity.

Gender—As shown in Figure 10-4, women had significantly lower engagement rates than men (64% versus 83%; p<.001). Because some disability groups were disproportionately male (e.g., youth with learning disabilities and emotional disturbances), it is important to determine whether gender differences exist for youth with the same disability. Figure 10-4 shows a pattern of results for many disability categories that is similar to the one observed for youth as a whole. For six disability groups (learning disabled, emotionally disabled, speech impaired, mentally retarded, hard of hearing, and orthopedically impaired), engagement rates were at least 10 percentage points higher for men than women. However, these differences were not statistically significant because of the small samples.

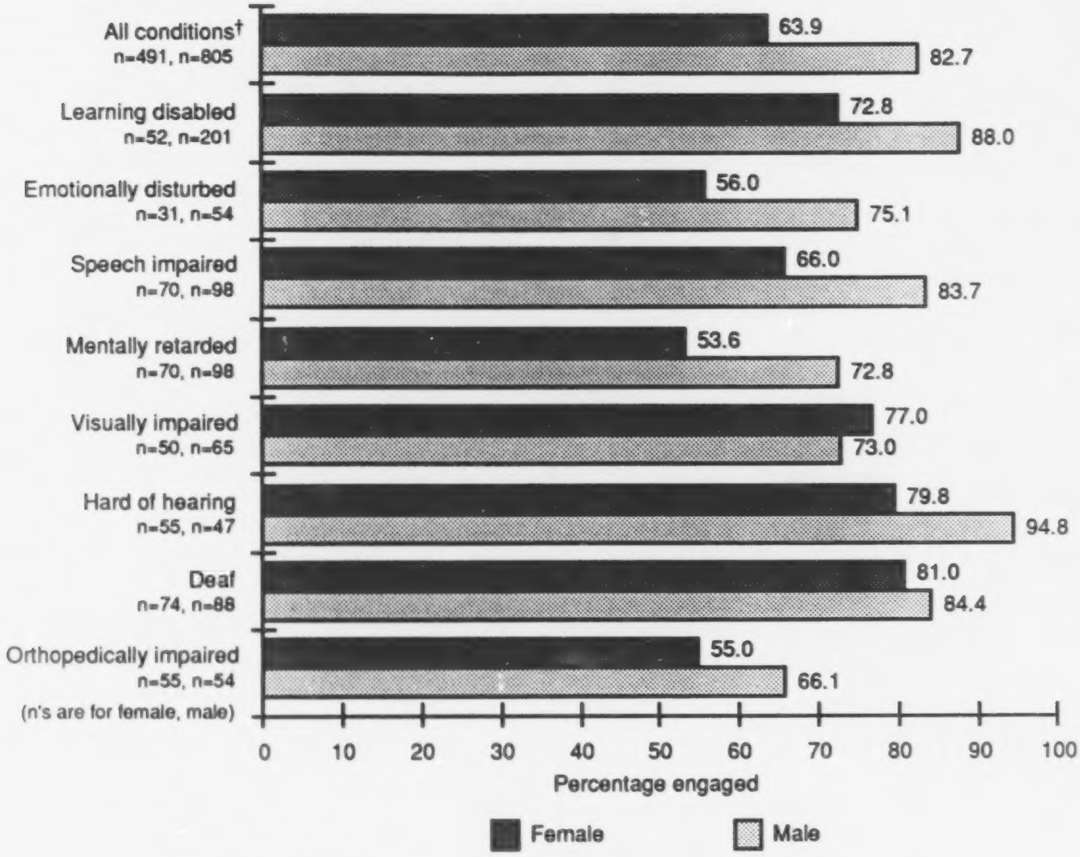

FIGURE 10-4 VARIATIONS IN ENGAGEMENT BY GENDER

† "All conditions" includes youth in all 11 federal disability categories; data are reported separately only for categories with at least 30 men and women.

Source: Parent interviews.

The 1987 NLTS parent interviews did not collect information on other types of productive activities commonly performed by women (e.g., housekeeping and child rearing). However, information on these activities were collected 2 years later in the exiter substudy for a subset of youth with disabilities. As will be discussed in a later section on time use, many young women who were not engaged in education- or work-related activity outside the home were productive within the home (e.g., taking care of other family members, raising children).

Marital Status—Because one would expect the likelihood of being responsible for housekeeping and child-rearing activities to be higher than for married women than for unmarried women, we examined the relationship between marital status and engagement. Only a small percentage of the exiters who had been out of school for 1 to 2 years were married

(10%), and more than half of married exiters were women (58%). Although not statistically significant, unmarried exiters were somewhat more likely to have been engaged in productive activity outside the home during the preceding year than were married exiters (83% vs. 70%). When women and men were analyzed separately, unmarried women had higher rates of engagement outside the home than married women (71% vs. 50%), but unmarried men had lower engagement rates than married men (87% vs. 98%). However, differences in engagement rates by marital status were not statistically significant because of small samples.

Age—Theory would suggest that older exiters would have had more training and preparation for adult life and more time or opportunities to find a job or gain entry into a training program or postsecondary school. On the other hand, older exiters may have experienced more failure than younger exiters and may have begun the downward spiral observed in other transition studies (e.g., Edgar, Levine, and Maddox, 1986).

Moreover, hypotheses regarding age must account for the interrelationships of age both with school completion status and with functional abilities. Most exiters (55%) who had been out of school for 1 to 2 years were 19 or 20 years of age in 1987. Approximately 1 in 5 (21%) were ages 17 or 18, and 22% were ages 21 to 25. However, most exiters under age 19 were dropouts (61%), whereas most exiters over age 20 had left secondary school after reaching the age limit (75%). These older youth who aged out of school also generally were more severely impaired than either graduates or dropouts. This accounts for some of the differences in engagement rates between exiters by age.

As shown in Table 10-3, 61% of youth aged 17 or 18 and 75% of those over age 20 were engaged in education- or work-related activity 1 to 2 years after high school, compared with 85% of exiters aged 19 or 20 ($p<.05$). When school completion status was controlled for, engagement rates did not differ significantly by age (e.g., 88% of graduates aged 19 or 20 were engaged, compared with 82% of graduates over age 20). Further, when youth in different age groups with similar levels of mental functioning were compared, no consistent relationship emerged between age and whether youth were engaged.

Minority Status—Whether because of lower socioeconomic status, poorer education and training, or discrimination, other studies (e.g., Siegel, 1987) and analyses of NLTS data described in earlier chapters of this report have found that being a member of an ethnic minority can place youth at a disadvantage in obtaining postsecondary education or employment. In this section, we compare how minority youth and nonminority youth differed with respect to engagement.

Table 10-3

VARIATIONS IN LEVELS OF ENGAGEMENT BY AGE

Youth Characteristics	Youth Productively Engaged		
	%	S.E.	N
Age			
17 or 18	60.6	8.8	108
19 or 20	85.2	3.2	546
21 or older	75.2	3.2	622
School completion status and age			
Graduate			
17 or 18	—	—	—
19 or 20	88.5	3.2	439
21 or older	82.3	4.7	243
Dropout			
17 or 18	59.7	9.8	85
19 or 20	75.9	8.6	94
21 or older	74.4	10.3	48
Ageout			
17 or 18		N/A	
19 or 20		N/A	
21 or older	71.4	4.7	318
Functional mental skills† and age			
Low (4 to 9)			
17 or 18	—	—	—
19 or 20	41.4	7.6	31
21 or older	45.1	9.5	127
Medium (10 to 14)			
17 or 18	—	—	—
19 or 20	82.2	6.8	156
21 or older	77.9	5.5	194
High (15 or 16)			
17 or 18	67.0	10.6	66
19 or 20	89.2	3.5	332
21 or older	89.1	3.7	236

Note: — = Too few cases.

† Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: Parent interviews.

As shown in Table 10-4, overall, minority youth had lower education- and work-related engagement rates than did nonminority youth (69% vs. 82%; p<.05). This pattern held for minorities and nonminorities in the majority of disability categories. However, because of the small samples, the differences in engagement rates between nonminority and minority youth were statistically significant only for youth with emotional disturbances (93% versus 35%; p<.01) and youth with visual impairments (91% versus 59%; p<.01).

Among youth as a whole, nonminority graduates and minority graduates had similar engagement rates (88% and 83%). Nonminority dropouts were more likely to be engaged than minority dropouts (74% versus 57%). Similarly, nonminority ageouts had higher engagement rates than minority ageouts (75% versus 66%). However, these differences were not statistically significant. Furthermore, in the multivariate analysis described later, minority status did not have a significant independent relationship to the likelihood of being engaged when other factors were held constant.

Table 10-4

ENGAGEMENT OF MINORITY AND NONMINORITY YOUTH

	Youth Productively Engaged					
	Minority			Nonminority		
Disability Category	%	S.E.	N	%	S.E.	N
All conditions	69.1	5.5	449	82.4	3.0	821
Learning disabled	81.3	8.1	64	86.8	3.9	185
Emotionally disturbed	34.8	11.2	43	93.4	4.1	90
Speech impaired	75.6	9.9	38	76.8	11.1	46
Mentally retarded	60.5	9.0	53	67.7	6.1	109
Visually impaired	58.7	6.1	48	90.8	6.7	65
Hard of hearing	86.9	8.7	38	86.4	8.0	61
Deaf	76.8	7.5	62	87.5	5.6	95
Orthopedically impaired	53.2	12.5	41	65.7	8.4	68
Other health impaired	67.5	13.0	30	76.9	11.5	35
Multiply handicapped	—	—	—	46.7	14.7	53
School completion status						
Graduate	83.0	6.6	213	88.5	3.3	464
Dropout	56.9	10.4	91	74.1	7.2	143
Ageout	65.7	8.9	123	75.0	5.4	193

Note: — = Too few cases.
Source: Parent interviews.

Socioeconomic Status—Intergenerational transmission of socioeconomic status has been documented in numerous other studies of employment and postsecondary education, as well as in analyses of NLTS data reported in earlier chapters. Although the relationship between family background and successful transition from school to adult life is well documented, the explanation for the association is not clear. Whether because of differing expectations, values, school experiences, parental efforts, or the self-family-friend network, youth from families with household incomes in 1986 of $25,000 or more were significantly more likely to be productively engaged than exiters from households with incomes below $12,000 (91% versus 67%; p<.05; Table 10-5). Similarly, exiters from households in which the head of household graduated from high school or had at least some college education were more likely to be engaged than were exiters from families in which the head of household had not graduated from high school (84% to 90% vs. 70%; p<.05).

Another component of household background is whether the youth lived in a single-parent household. One would expect youth in two-parent households to have more financial support for postsecondary participation and a larger network of contacts to help with job search activities. However, youth in two-parent households were not significantly more likely to be engaged than youth in single-parent households.

Table 10-5

ENGAGEMENT OF YOUTH WITH VARIOUS HOUSEHOLD AND COMMUNITY CHARACTERISTICS

	Youth Productively Engaged		
	%	S.E.	N
Household characteristics			
Annual income			
Less than $12,000	66.6	6.1	284
$12,000 to $24,999	84.9	4.5	320
$25,000 or higher	90.7	3.2	452
Head of household's highest education			
Less than high school	69.6	4.9	435
High school graduate	90.1	3.4	410
More than high school	83.8	4.9	351
Youth was from:			
Single-parent household	69.9	5.1	435
Two-parent household	86.5	2.8	766
Community characteristics			
Youth was from:			
Urban area	73.5	6.4	310
Suburban area	89.5	4.0	287
Rural area	79.4	5.0	182

Source: Parent interviews.

Related to family background is the location of the community where the youth attended school. One would expect urban and suburban communities to have more resources and opportunities for youth to become productively engaged, relative to rural communities (e.g., public transportation, independent-living centers, vocational/technical schools, large businesses that employ persons in a variety of different roles). On the other hand, suburban communities tend to have smaller proportions of economically and educationally disadvantaged youth and lower rates of youth unemployment than do urban communities. For this reason, we expected youth in suburban communities to have the highest rates of productive engagement. As shown in Table 10-5, youth in suburban communities were significantly more likely to be productively engaged relative to youth in urban communities (90% versus 74%; p<.05). However, as the multivariate analysis will demonstrate, when socioeconomic status was held constant, urbanicity did not have a significant independent relationship to the likelihood of becoming productively engaged.

Secondary School Factors

Recent special education policy initiatives have emphasized that transition success is not just a function of characteristics of the youth making the transition. Rather, transition success can be affected by policies, programs, and activities of the youths' secondary schools. The belief that schools can and should assist youth in making their postschool transitions more smoothly underlies incorporation into the Individuals with Disabilities Education Act (IDEA) a requirement that transition planning be included in the individualized educational planning process for special education students who are age 16 or older. Here, we examine variations in levels of engagement after high school for youth with different secondary school experiences.

Regular Education Placements—Successful participation in work or educational activities requires social skills; integration into regular education is one way of exposing students with disabilities to their nondisabled peers so that adaptive social behaviors can be modeled. To the extent that spending time in regular education enhances youths' social skills and integration in school (and Chapter 6 provides some evidence that it does), we would expect it to facilitate similar integration in education and work environments after leaving secondary school. However, because one also would expect higher-functioning youth to spend more class time in regular education, it is important to examine the relationship of school placement to engagement for youth with similar levels of mental functioning.

Table 10-6 shows that, as expected, exiters who spent 50% or more of their class time in regular education in the most recent secondary school year had higher engagement rates than youth who spent less time in regular education. Between 88% and 92% of exiters who spent half or more of their time in regular education were productively engaged, compared with 68% of those who spent less than half of their time in regular education (p<.01). This relationship also holds true for youth with the same kind of disability. For example, among youth with learning disabilities, 92% of those who spent 50% or more of their class time in regular education were engaged 1 to 2 years after high school, compared with 70% of those who spent less than half of their time in regular education. However, this difference was not statistically significant because of the small sample.

Greater support for the independent relationship of regular education and engagement is found when we examine variations for youth with different levels of functional mental skills. For example, among youth with high functional mental skills, those who spent less than 50% of their class time in regular education were significantly less likely to be productively engaged than were those who spent 50% or more of their class time in regular education (76% vs. 92% to 98%; p<.05). Of course, the relationship between engagement and time spent in regular education may be confounded by aspects of functional abilities not measured by the NLTS.

Table 10-6

ENGAGEMENT FOR YOUTH WITH VARIOUS LEVELS OF INVOLVEMENT IN REGULAR EDUCATION IN THEIR MOST RECENT SECONDARY SCHOOL YEAR

	Youth Productively Engaged		
Percentage of Class Time in Regular Education	%	S.E.	N
Amount of time in regular education classes			
Less than 50%	68.4	6.2	339
50% to 74%	88.1	6.1	91
75% or more	91.5	4.3	209
Amount of time in regular education for youth with various levels of functional mental skills †			
Low skills (4 to 9)			
Less than 50% time	50.2	12.4	78
50% to 74% time	—	—	—
75% or more time	—	—	—
Medium skills (10 to 14)			
Less than 50% time	69.9	10.7	120
50% to 74% time	73.6	14.1	31
75% or more time	92.7	9.9	45
High skills (15 or 16)			
Less than 50% time	75.5	9.1	112
50% to 74% time	97.7	3.8	50
75% or more time	91.5	5.0	150

Note: — = Too few cases.

† Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: Time spent in regular education classes was reported in students' school records for their most recent school year. Other data are from parent interviews.

Vocational Education Enrollment—Most engaged youth were working, regardless of their enrollment in postsecondary schools. Consequently, we would expect that skills that prepare youth for work activity also would facilitate more generalized engagement. This expectation is borne out in Table 10-7, which shows that most youth (89%) who had received occupationally oriented vocational education in their most recent secondary school year were engaged, compared with about two-thirds (65%) of those who had not had this experience (p<.01). Five disability groups included a large number of productively engaged youth among both those who did and those who did not enroll in vocational education: learning disabled, mentally retarded, visually impaired, hard of hearing, and deaf. Except for youth classified as deaf, those in each of these disability categories who had received occupationally oriented vocational education were at least 15 percentage points more likely to be engaged than were youth who had not received this type of education. However, the effect of occupationally oriented vocational education was statistically significant only for youth with learning disabilities and visual impairments.

As with other school services, support for the independent relationship of vocational education and engagement is found when we examine variations for youth with different levels of functional mental skills. For example, among youth with low functional mental skills, 73% of those who had received vocational education were engaged, compared with 29% of those who had not received this type of training (p<.05). Comparable percentages were 87% and 60% for youth with medium functional mental skills (p<.05) and 92% and 75% for those with high functional mental skills (p<.05). Also, youth with similar levels of self-care ability had different levels of engagement, depending on whether they had taken occupationally oriented vocational education in the most recent secondary school year. For example, among those with high self-care ability, 92% of those who had taken vocational education were engaged, compared with 75% of those who did not receive this education (p<.01).

School Completion Status—Finally, we would expect failure to obtain a high school diploma to be a barrier to successful engagement. This relationship might result because of the lower abilities and skills of dropouts and youth who age out, because of their inability to satisfy eligibility requirements for educational programs or jobs, or because characteristics of youth not measured in the NLTS are common to those who drop out and those who fail to become engaged. As expected, a significant relationship is shown in Table 10-8. Relative to high school graduates (86%), dropouts and ageouts were significantly less likely to be engaged (68% and 71%; p<.01).

However, like other school experiences, the likelihood of graduating, dropping out, or aging out differed depending on the nature of a youth's disability. In our sample, dropouts constituted a sizable percentage of high school exiters in only three disability groups: learning disabled, emotionally disturbed, and mentally retarded. Among youth in these three groups, those who dropped out had consistently lower engagement rates than those who graduated, although the differences were not statistically significant for individual categories. For example, 64% of dropouts with emotional disturbances were engaged, compared with 79% of graduates in the

Table 10-7

VARIATIONS IN ENGAGEMENT BY ENROLLMENT IN OCCUPATIONALLY ORIENTED VOCATIONAL EDUCATION IN THE MOST RECENT SECONDARY SCHOOL YEAR

	Youth Productively Engaged		
Enrollment in Occupationally Oriented Vocational Education	%	S.E.	N
Disability category[†]			
All conditions			
Yes	89.4	3.5	406
No	64.6	4.6	502
Learning disabled			
Yes	95.7	3.2	91
No	70.6	7.4	102
Mentally retarded			
Yes	75.5	8.3	51
No	54.2	7.7	76
Visually impaired			
Yes	91.0	6.6	38
No	64.7	9.9	48
Hard of hearing			
Yes	93.9	6.4	48
No	78.5	12.0	36
Deaf			
Yes	81.2	7.6	68
No	75.7	9.3	48
Functional mental skills[§]			
Low (4 to 9)			
Yes	73.1	17.2	33
No	28.7	10.7	95
Medium (10 to 14)			
Yes	86.7	7.0	127
No	60.0	9.2	164
High (15 or 16)			
Yes	92.0	4.1	212
No	75.0	5.6	289
Self-care ability[#]			
Low (3 to 7)			
Yes	—	—	—
No	20.0	13.4	39
Medium (8 to 10)			
Yes	52.5	15.2	46
No	36.9	15.5	73
High (11 or 12)			
Yes	92.1	3.4	321
No	75.0	4.9	368

Note: — =Too few cases.

[†] "All conditions" includes youth in all 11 disability categories. Data are reported separately only for categories with at least 30 students who did and did not receive occupationally oriented vocational education in their most recent secondary school year.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

[#] Parents rated on a 4-point scale youths' abilities to dress themselves, feed themselves, and get around outside the home. Ratings were summed to create a scale ranging from 3 to 12.

Source: Vocational education enrollment was based on students' school records or parent interviews (see Appendix C). Other data are from parent interviews.

Table 10-8

VARIATIONS IN ENGAGEMENT BY MODE OF LEAVING SECONDARY SCHOOL

	Youth Productively Engaged		
Secondary School Completion Status	%	S.E.	N
All conditions[†]			
Graduated	86.2	3.0	696
Dropped out	68.0	6.0	238
Aged out	71.4	4.7	318
Disability category			
Learning disabled			
Graduated	91.3	3.5	149
Dropped out	75.1	9.0	52
Aged out	87.1	6.7	46
Emotionally disturbed			
Graduated	79.1	9.1	51
Dropped out	63.5	9.5	54
Aged out	—	—	—
Mentally retarded			
Graduated	73.1	6.9	76
Dropped out	54.4	11.6	33
Aged out	62.6	8.4	57
Deaf			
Graduated	86.9	5.4	101
Dropped out	—	—	—
Aged out	86.0	8.2	45
Functional mental skills[§]			
Low (4 to 9)			
Graduated	64.1	14.1	50
Dropped out	—	—	—
Aged out	44.0	11.5	90
Medium (10 to 14)			
Graduated	85.5	6.3	192
Dropped out	72.6	9.9	76
Aged out	75.2	7.9	101
High (15 or 16)			
Graduated	90.0	3.3	407
Dropped out	70.0	8.3	121
Aged out	85.9	6.0	100

Note: — = Too few cases.

[†] "All conditions" includes youth in all 11 disability categories; data are reported separately only for categories with at least 30 students leaving school by two of the three modes.

[§] Parents rated on a 4-point scale youths' abilities to tell time on a clock with hands, look up telephone numbers and use the phone, count change, and read common signs. Ratings were summed to create a scale ranging from 4 to 16.

Source: Parent interviews.

same category. Our sample included a relatively small number of ageouts, except in the following disability groups: learning disabled, mentally retarded, deaf, and multiply handicapped. Those who aged out did not have markedly different engagement rates than did those who graduated.

Even when differences in functional mental skills were held constant, high school graduates were the most apt to be engaged in productive activities. Engagement rates ranged from 64% for graduates with low functional mental skills to 90% for those with high functional mental skills. Among youth with medium and high functional mental skills, graduates were 10 to 20 percentage points more likely to be engaged than were high school dropouts ($p<.05$).

Multivariate Analysis of Engagement

The preceding tables have shown that individual characteristics and secondary school experiences were related to exiters' likelihood of becoming engaged in productive activities in the early years after leaving high school. Further, theory, findings from other studies, and some of the analyses described thus far have demonstrated that many of these factors are interrelated (e.g., disability classification and level of functioning, gender and marital status, age and school completion status). Although crosstabulations of two or three factors reveal interesting variations, to disentangle the independent relationships between engagement and the factors we have examined requires a multivariate analysis technique.

We have included in a multivariate logit analysis of engagement most of the variables suggested in Figure 10-3 to be related to the likelihood of engagement (percentage of time in regular education was excluded because of the comparatively large number of missing values on this variable).[*] Results of the multivariate analysis are shown in Table 10-9, which presents both logit coefficients and results converted to a change in the estimated probability of engagement. As discussed in Appendix A, this conversion shows the estimated percentage of youth who would be engaged if they had the attribute—or some specified value of the attribute—with mean values on all other variables in the analysis.

Disability Characteristics—The multivariate analysis includes both disability categories and measures of functional abilities, which vary widely for youth in different categories. When these various aspects of disability are considered together, we find that variations in functioning, not the type of disability captured by the category label, generally were more strongly related to rates of engagement.

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[*] Appendix D, Table D10-1 presents the unweighted means of variables in this analysis for all youth and the subsample of youth in the multivariate analysis. The only significant difference between them is a higher proportion of graduates among youth in the subsample. However, correlations between engagement and the independent variables are quite similar; no pattern of bias is suggested in the subsample.

Table 10-9

FACTORS RELATED TO ENGAGEMENT

		Change in Estimated Probability	
Variable	Coefficient	Amount	For Increment
Disability characteristics			
Disability category[†]			
Emotionally disturbed	-.51	-8.1	Emotionally disturbed vs. learning disabled
Speech impaired	-.77	-13.1	Speech impaired vs. learning disabled
Mildly/moderately mentally retarded	-.62	-10.2	Mentally retarded vs. learning disabled
Visually impaired,	-.04	-.1	Visually impaired vs. learning disabled
Hard of hearing	-.22	-3.2	Hard of hearing vs. learning disabled
Deaf	-.73	-12.2	Deaf vs. learning disabled
Orthopedically impaired	-1.89***	-39.5	Orthopedically impaired vs. learning disabled
Other health impaired	-.94	-9.0	Other health impaired vs. learning disabled
Severely impaired (e.g., multiply handicapped, deaf/blind)	-.26	-3.8	Severely impaired vs. learning disabled
Self-care ability	.19**	11.6	High vs. medium
Functional mental skills	.08*	5.6	High vs. medium
IQ score	.02*	5.4	100 vs. 80
Individual characteristics			
Gender	.77***	13.9	Male vs. female
Youth is minority	-.35	-6.2	Minority vs. nonminority
Age	-.11	-3.4	20 vs. 18 in 1987
Youth is not married	.81*	16.4	Married vs. unmarried
Household characteristics			
Single-parent household	-.43	7.6	Single-parent vs. 2-parent
Household income	.20**	7.6	$25,000 to $38,000 vs. <$12,000
Community characteristics			
Youth lived in:			
Urban area	-.12	-2.0	Urban vs. suburban
Rural area	-.26	4.5	Rural vs. suburban
Secondary school experiences			
Youth received occupationally oriented vocational education	.72**	12.1	Yes vs. no
Youth graduated high school	1.31***	26.6	Graduated vs. dropped out
Youth aged out of high school	1.00*	21.7	Aged out vs. dropped out

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Note: The analysis includes youth who were not institutionalized and who had been out of school for 1 to 2 years as of summer 1987 (n =739). For details on the coding of independent variables, see Appendix C. For a comparison of all noninstitutionalized youth who had been out of school for 1 to 2 years to youth in the analyses, see appendix table D10-1.

[†] Variables regarding students' primary disabilities were constructed somewhat differently for multivariate analysis purposes than for descriptive analyses reported thus far, to take advantage of more current and complete information on disability. See Appendix C for details.

* p < .05; ** p < .01; *** p < .001.

The results from the multivariate analysis show that self-care ability, functional mental skills, and IQ related significantly to a youth's likelihood of being engaged in education- or work-related activity outside the home 1 to 2 years after leaving secondary school. For example, youth who had high self-care ability were about 12 percentage points more likely to be engaged than were those with medium self-care ability. In contrast, youth in most of the disability categories did not differ significantly in engagement from the rate estimated for learning disabled students, suggesting that the functional differences, not the type of disability, were the stronger determinants. The notable exception is that youth with orthopedic impairments were significantly less likely to be engaged than the majority of exiters, even when their levels of functioning were the same. Relative to exiters with learning disabilities, exiters with orthopedic impairments were 40 percentage points less likely to be engaged when functional levels were held constant.

The powerful effects of disability on the likelihood of becoming engaged are somewhat masked when we examine each disability-related factor separately but become more apparent when they are considered together—that is, a particular disability often occurs in conjunction with both low functional mental skills and low self-care skills. To illustrate, for youth with mental retardation, NLTS data indicate that the average functional mental skills score was 8.5 (on a scale from 4 to 16), the average self-care skills scale score was 8.3 (on a scale from 3 to 12), and the average IQ was 54. For a youth with these characteristics, we estimate that only 39% would be engaged in education- or work-related activity 1 to 2 years after high school, a rate 39 percentage points below the engagement rate estimated for the full sample of youth with disabilities whose demographic and school experiences were the same. Clearly, these youth faced tremendous challenges to engagement as a result of the constellation of characteristics that accompanied their disability.

Individual, Household, and Community Characteristics—Gender was strongly related to whether an exiter became engaged in education- and work-related activity. Males were about 14 percentage points more likely to be engaged outside the home than females, independent of other factors. The combined effect of gender and marital status was particularly dramatic. For example, married women were estimated to be 33 percentage points less likely to be engaged in education- and work-related activity than unmarried men with a similar profile.

Household income also was a significant predictor of the likelihood of being engaged. For example, youth from families with household incomes under $12,000 were estimated to be 8 percentage points less likely to be engaged than were those from families with incomes from $25,000 to $38,000, other factors being equal. Minority status, age, and whether the youth lived in an urban, rural, or suburban community were not significant independent determinants of engagement.

Secondary School Experiences—Among the most important findings, from a policy and programming perspective, is the positive relationship between engagement and particular school experiences. The multivariate analysis demonstrates that when level of functioning, disability, and other personal characteristics were controlled, school experiences were important influences on engagement. For example, for youth who shared the same disability and demographic characteristics, graduates had an estimated likelihood of becoming engaged in education- and work-related activity that was 27 percentage points higher than that of dropouts.

Further effects of school programs are demonstrated when we examine the relationship of engagement to receipt of occupationally oriented vocational education. Relative to those who did not receive such training, youth with disabilities who had received it in their most recent year in secondary school were twelve percentage points more likely to be engaged in education- and work-related activity 1 to 2 years after leaving high school, independent of other factors.

Trends in Engagement Over Time

A limited amount of research on transition experiences for youth with disabilities is longitudinal; such studies have found that some indicators of positive transitions increase over time (e.g., employment), whereas others decrease (e.g., postsecondary school enrollment; Edgar, Levine, and Maddox, 1986). Data collected from parent interviews in the first wave of the NLTS and parent/youth interviews in the exiter substudy can be used to compare engagement over time for youth who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly/moderately mentally retarded (with no other disability). Note that in the 1987 interviews, information was collected about postsecondary education during a 12-month period. In contrast, the exiter substudy collected data on current postsecondary education. Therefore, some of the differences in postsecondary education participation and engagement rates may be due to the difference in time frame.

Table 10-10 describes participation rates in various productive educational and work activities for youth in the exiter subsample who had been out of school 1 to 2 years, 2 to 3 years, and 3 to 4 years. Data in column 1 were collected from the 1987 parent interviews, whereas data in columns 2 and 3 were collected from the youth or their parents in the exiter substudy. Figures in columns 1 and 3 are calculated for the same subsample of youth. (Youth in column 2 had been out of school less than 12 months at the time of the 1987 interviews.)

The rate of current paid employment increased from 57% to 70% for these youth from 1987 to 1989, although this difference was not statistically significant. Except for attendance at a 4-year college, participation in educational activities appeared to decline (although not significantly). However, the exiter substudy measured current postsecondary school enrollment, while the 1987 interviews measured enrollment in the preceding year. Because we would expect more youth to have attended school or received training over a 1-year period than at a single point in time, part or all of the apparent decline in postsecondary school enrollment is likely to be due to the difference in time frame asked about. Voluntary work activity declined from 13% to 6%, although the decrease was not significant and could also be due to a difference in time frame like that described for postsecondary school enrollment.

Table 10-10

PARTICIPATION IN VARIOUS EDUCATION- AND WORK-RELATED ACTIVITIES AMONG YOUTH IN THE EXITER SUBSTUDY BY NUMBER OF YEARS SINCE HIGH SCHOOL[†]

	Years Since High School:					
	1 to 2[§]		2 to 3[#]		3 to 4[††]	
	%	S.E.	%	S.E.	%	S.E.
Productive educational activities						
Received/receiving training in specific job skills from someone other than a family member	8.6	2.6	9.8	2.6	5.6	2.1
Took/taking courses to earn a high school diploma	2.8	1.5	2.0	1.2	.9	.9
Took/taking courses from a:						
Vocational or trade school	6.8	2.3	3.0	1.5	.9	.9
2-year junior/community college	4.9	2.0	2.5	1.4	2.8	1.5
4-year college/university	1.8	1.2	1.4	1.0	2.6	1.4
Productive work activities						
Working for pay, other than work around the house (could include a sheltered workshop)	57.4	4.4	68.8	4.1	70.3	4.1
Did/doing volunteer work, not including work around the house	13.4	3.1	5.8	2.1	5.6	2.1
N	386		421		383	

[†] Except for paid employment, participation rates in the past year are shown for youth 1 to 2 years out of secondary school. Current participation rates are shown for paid employment and for all measures for youth 2 to 4 years out of school.

[§] Source: Parent interviews. Includes youth out of secondary school 1 to 2 years and not institutionalized in summer 1987 and for whom exiter substudy interviews were completed.

[#] Source: 1989 exiter substudy interviews. Includes youth out of secondary school up to 12 months and not institutionalized in summer 1987 and for whom exiter substudy interviews were completed.

[††] Source: 1989 exiter substudy interviews. Includes youth out of secondary school 1 to 2 years and not institutionalized in summer 1987 and for whom exiter substudy interviews were completed.

Table 10-11 demonstrates the cumulative effects of these changes. Note that the previously calculated engagement rate for wave 1 was modified. To facilitate comparisons with data collected in the exiter substudy on current engagement, only current paid employment was counted, rather than any paid employment during the past year. As indicated, information on current voluntary work activity and postsecondary education was not collected in 1987. Thus, the measure in column 1 represents (1) current paid employment and (2) participation in voluntary work activity and postsecondary education during the past year. Current engagement is reported in columns 2 and 3.

As shown in Table 10-11, the percentage of youth who were engaged increased slightly (but not significantly) as the number of years since high school increased. Approximately 69% of youth in the selected disability categories who had been out of secondary school for 1 to 2 years were engaged using this measure, compared with 77% and 76% of youth who had been out of school 2 to 3 years and 3 to 4 years, respectively.

Table 10-11

ENGAGEMENT RATES BY NUMBER OF YEARS SINCE HIGH SCHOOL

	Years Since High School:					
	1 to 2[†]		2 to 3[§]		3 to 4[#]	
Elements of Engagement	%	S.E.	%	S.E.	%	S.E.
Youth was nonengaged (no educational or work activities)	31.1	4.2	23.0	3.7	23.9	3.8
Youth was engaged in:						
Work activities only	51.7	4.5	67.5	4.1	67.8	4.2
Educational activities only	6.9	2.3	3.4	1.6	1.9	1.2
Work and educational activities	10.2	2.7	6.2	2.1	6.3	2.2
Total engaged	68.9	4.2	77.0	3.7	76.1	3.8
N	387		423		385	

[†] Source: Parent interviews. Includes youth out of secondary school 1 to 2 years and not institutionalized in summer 1987 and for whom interviews were completed in the exiter substudy. Engagement was based on (1) current paid employment and (2) voluntary work and educational activity in the past 12 months.

[§] Source: 1989 exiter substudy interviews. Includes noninstitutionalized youth out of secondary school less than 12 months in summer 1987. Current engagement was calculated.

[#] Source: 1989 exiter substudy interviews. Includes noninstitutionalized youth out of secondary school 1 to 2 years in summer 1987 (same sample as in column 1). Current engagement was calculated.

Table 10-12 indicates that, relative to youth who had been out of school 1 to 2 years, engagement rates increased slightly (but not statistically significantly) for youth with learning disabilities who had been out of school 2 to 4 years (74% vs. 84%). Engagement rates for youth with speech impairments fluctuated (although differences were not statistically significant), and engagement rates for youth with emotional disturbances and mental retardation were comparatively flat.

Had current participation in postsecondary education (rather than participation over a 12-month period) been measured in 1987, it is likely that the increase in engagement between 1 to 2 and 2 to 3 years after high school would be greater for youth in all conditions. However, because the same definition was used to measure engagement 2 to 3 and 3 to 4 years after high school, these data clearly indicate that the overall rate of engagement did not improve during these later time periods.

Table 10-12

PERCENTAGE ENGAGED BY NUMBER OF YEARS SINCE HIGH SCHOOL, FOR YOUTH IN SELECTED DISABILITY CATEGORIES

	Years Since High School:						
	1 to 2†		2 to 3§		3 to 4#		
	%	S.E.	%	S.E.	%	S.E.	N
Learning disabled	73.5	5.5	83.9	4.6	84.1	4.6	142-172
Emotionally disturbed	62.8	9.8	63.1	7.9	64.1	9.7	66-99
Speech impaired	80.3	9.4	90.5	5.8	74.2	10.5	41-91
Mildly/moderately mentally retarded	58.8	7.2	63.9	6.5	60.3	7.2	97-106

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† Source: Parent interviews. Includes youth out of secondary school 1 to 2 years and not institutionalized in summer 1987 and for whom interviews were completed in the exiter substudy. Engagement was based on (1) current paid employment and (2) voluntary work and educational activity in the past 12 months.

§ Source: 1989 exiter substudy interviews. Includes noninstitutionalized youth out of secondary school less than 12 months in summer 1987. Current engagement was calculated.

Source: 1989 exiter substudy interviews. Includes noninstitutionalized youth out of secondary school 1 to 2 years in summer 1987 (same sample as in column 1). Current engagement was calculated.

Thus far, we have analyzed aggregate changes in engagement rates during the first few years after high school. Because engagement status was calculated for the same sample of youth (i.e., the exiter subsample) between summer 1986 and summer 1987 and approximately 2 years later, in September/October 1989, we also can analyze the changes in individuals' engagement status during this time period, for example, did a given youth experience early engagement but later become nonengaged?

Engagement status appeared to be fairly stable for the majority (74%) of exiters between these two points in time (Table 10-13):

- 59% were engaged at both times.
- 15% were not engaged at either time.
- 9% were engaged shortly after high school, but not 2 years later.
- 16% were not engaged shortly after high school, but were 2 years later.

However, these data suggest that comparisons of overall rates of engagement over time mask important distinctions. For example, although 3 of 4 youth with disabilities were engaged in 1989, only 3 out of 5 had been consistently so. One in 6 never became engaged, and the rate of nonengagement was higher for youth with some kinds of disabilities (i.e., emotional disturbances, mental retardation) than for others. One in 4 youth were floundering between engagement and nonengagement. Fortunately, more became engaged (1 in 6) than became nonengaged (1 in 10) as time passed.

As shown in Table 10-13, engagement status was slightly (but not statistically significantly) less stable for exiters with emotional disturbances than for those with other disabilities. The engagement status for exiters was stable when comparing 1987 and 1989 for 76% of youth with learning disabilities, 74% of youth with mild or moderate mental retardation, and 72% of youth with speech impairments. In contrast, 67% of youth with emotional disturbances maintained the same engagement status; 17% who were engaged in 1987 were not in engaged in 1989, and 16% of youth in this disability category who were not engaged in 1987 were engaged in 1989.

Table 10-13

CHANGE IN ENGAGEMENT STATUS BETWEEN 1987 AND 1989[†]

		Disability Category:			
	All 4 Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded
Percentage of youth:					
Engaged at both times	59.3	66.7	45.3	61.6	45.6
	(4.4)	(5.9)	(10.1)	(11.7)	(7.4)
Not engaged at either time	15.4	9.6	21.5	9.9	28.4
	(3.3)	(3.7)	(8.3)	(7.2)	(6.7)
Engaged in 1987, not in 1989	9.4	6.8	17.3	17.7	12.3
	(2.6)	(3.2)	(7.7)	(9.2)	(4.9)
Engaged in 1989, not in 1987	15.9	16.8	15.9	10.6	13.7
	(3.3)	(4.7)	(7.4)	(7.4)	(5.1)
N	379	170	65	95	40

Note: Standard errors are in parentheses.

[†] Includes youth who were out of secondary school 1 to 2 years and not institutionalized in summer 1987 and for whom interviews were completed in the exiter substudy. For 1987, engagement was based on (1) current paid employment and (2) voluntary work and educational activity in the past 12 months. For 1989, current engagement was calculated.

Source: 1987 parent interviews and 1989 parent/youth interviews.

Beyond Productive Engagement

Although productive activity is crucial for youth shortly after high school, other activities can play important parts in the lives of youth with disabilities. In this chapter, we have found that a large number of youth with disabilities were not engaged in the early years after high school. Here we examine the extent to which youth who were not engaged were participating in other activities that may have been valuable to their lives or had the potential for improving their productivity later, including receipt of services or therapies related to their disabilities and being involved in social activities.

Receipt of Services

In light of their lower functional skills and productivity, we might expect nonengaged youth to be participating in services or therapies related to their disabilities to a greater extent than nonengaged exiters. In fact, the need to be available for such treatments may be one explanation for not being involved in other productive activities. However, regardless of their engagement status, relatively few exiters with disabilities (fewer than 10%) were receiving any of the following services 1 to 2 years after leaving secondary school: speech or language therapy; personal counseling or therapy; occupational therapy or life skills training; a tutor, reader, or interpreter; hearing-loss therapy; physical therapy. Furthermore, nonengaged exiters were not significantly more likely to have received these services in the past 12 months than were engaged exiters (Table 10-14).

Table 10-14

RECEIPT OF SERVICES BY ENGAGED AND NONENGAGED YOUTH 1 TO 2 YEARS AFTER HIGH SCHOOL

Services Received	Youth Were: Nonengaged	Youth Were: Engaged	Total
Percentage who received in the past year:			
Speech or language therapy	4.8 (3.0)	1.3 (.8)	3.3 (1.0)
Personal counseling or therapy	8.7 (4.0)	6.3 (1.8)	6.7 (1.4)
Occupational therapy or life skills training	2.8 (2.3)	4.6 (1.5)	5.2 (1.2)
Help from a tutor, reader, or interpreter	1.7 (1.8)	4.1 (1.4)	2.9 (.9)
Physical therapy/mobility training	2.3 (2.1)	1.2 (.8)	2.7 (.9)
N	305	961	1,624

Note: Standard errors are in parentheses.
Source: Parent interviews.

Social Experiences

Social and community integration are important aspects of adult life (Halpern, 1986). The NLTS was interested in learning whether social isolation accompanied nonengagement after high school for youth with disabilities. In this section, we examine the extent to which nonengaged youth saw friends and belonged to community groups and how the results compared with those for engaged youth.

By definition, most exiters classified as engaged spent time outside the home (e.g., working, going to school). Although we would expect them to have less leisure time, we would expect them to have more opportunities to meet people or make friends than nonengaged exiters.

As shown in Table 10-15, engaged exiters who had been out of school 1 to 2 years were significantly more likely to have been a member of a social or community group during that time than nonengaged exiters (23% vs. 10%; p<.01). However, even nonengaged youth did not appear to be socially isolated. Although engaged exiters were reported to get together socially with friends or family members (other than those they lived with) more days per week than nonengaged exiters, the difference was not statistically significant. The vast majority of youth who were nonengaged (85%) still were reported to see friends at least twice per week, despite their lack of involvement with coworkers or fellow students.

Table 10-15

SOCIAL EXPERIENCES OF ENGAGED AND NONENGAGED YOUTH

		Youth Were:	
Social Experiences		Nonengaged	Engaged
Percentage who were a member of a social/community group in past year		10.5 (4.6)	22.9 (3.1)
	N	268	926
Percentage who got together with friends:			
Less than once per week		14.9 (5.6)	7.6 (2.0)
2 to 3 days per week		51.8 (7.8)	40.5 (3.8)
4 or more days per week		33.3 (7.4)	51.9 (3.8)
	N	261	893

Note: Standard errors are in parentheses.

Source: Parent interviews.

Other Uses of Time

To take a broader look at other activities that involved youth with disabilities, we again turn to data from the exiter substudy involving youth classified as learning disabled, speech impaired, emotionally disturbed, or mildly/moderately mentally retarded and who were out of secondary school in 1987. Respondents in the substudy reported how youth spent most of their time during the preceding few weeks and since high school. By definition, nonengaged exiters (about 23% of youth) did not spend most of their time working for pay, doing volunteer work, or going to school. However, the time use questions provide some indication of what they were doing.

As shown in Table 10-16, the largest percentage of nonengaged youth (46%) reportedly were recreating. About 1 in 5 nonengaged youth were looking for work, and 25% were taking care of other family members, raising children, or keeping house. About 9% of youth were in a jail or correctional facility. Further, nonengaged exiters were significantly more likely to have participated in most of these activities than were engaged youth. For example, only 8% of engaged youth spent most of their time taking care of other family members, raising children, or keeping house, compared with 25% of the nonengaged (p<.05). Among engaged youth, 26% were recreating, visiting friends, or hanging out, versus 46% of the nonengaged (p<.05).

Table 10-16

USE OF TIME BY ENGAGED AND NONENGAGED YOUTH†

	Youth Were:		
Time Use	Overall	Nonengaged	Engaged
Working for pay, in the military	61.9 (3.1)	.0 (.0)	79.8 (3.0)
Attending school or a training program	6.7 (1.6)	.0 (.0)	8.6 (2.1)
Taking care of family, raising children, keeping house	11.4 (2.1)	25.0 (5.7)	7.5 (2.0)
Looking for work	7.7 (1.7)	20.5 (5.3)	4.0 (1.5)
Doing volunteer work, working for church	2.4 (1.0)	.0 (.0)	3.1 (1.3)
Participating in an organized program other than school or training	1.3 (.7)	1.7 (1.7)	1.1 (.8)
Recreating, visiting friends, hanging out	30.2 (3.0)	45.6 (6.5)	25.7 (3.2)
Ill, hospitalized, institutionalized	.5 (.5)	1.4 (1.6)	.2 (.4)
In jail or a correctional facility	2.0 (.9)	8.9 (3.7)	<.1 (.2)
Doing something else	2.0 (1.0)	5.5 (3.0)	.9 (.7)
N	768	170	598

Note: Standard errors are in parentheses.

† Percentages do not sum to 100 because some respondents gave more than one answer.

Source: 1989 parent/youth interviews.

The activities that involved nonengaged youth suggest the likelihood of gender differences in time use. For example, we would expect nonengaged women to be more involved in productive activities in the home than men who were not engaged in work or education activities. Figure 10-5 compares how nonengaged males and females spent their time during the preceding few weeks. As expected, nonengaged women were significantly more likely than nonengaged men to be taking care of family, raising children, or keeping house (52% vs. 3%; p<.001). Nonengaged men were significantly more likely than nonengaged women to have been in a jail or correctional facility (18% vs. none; p<.05). Compared with nonengaged women, nonengaged men were more likely to be looking for work (24% vs. 16%) or to be recreating, visiting friends, or hanging out (52% vs. 36%), although these differences were not statistically significant.

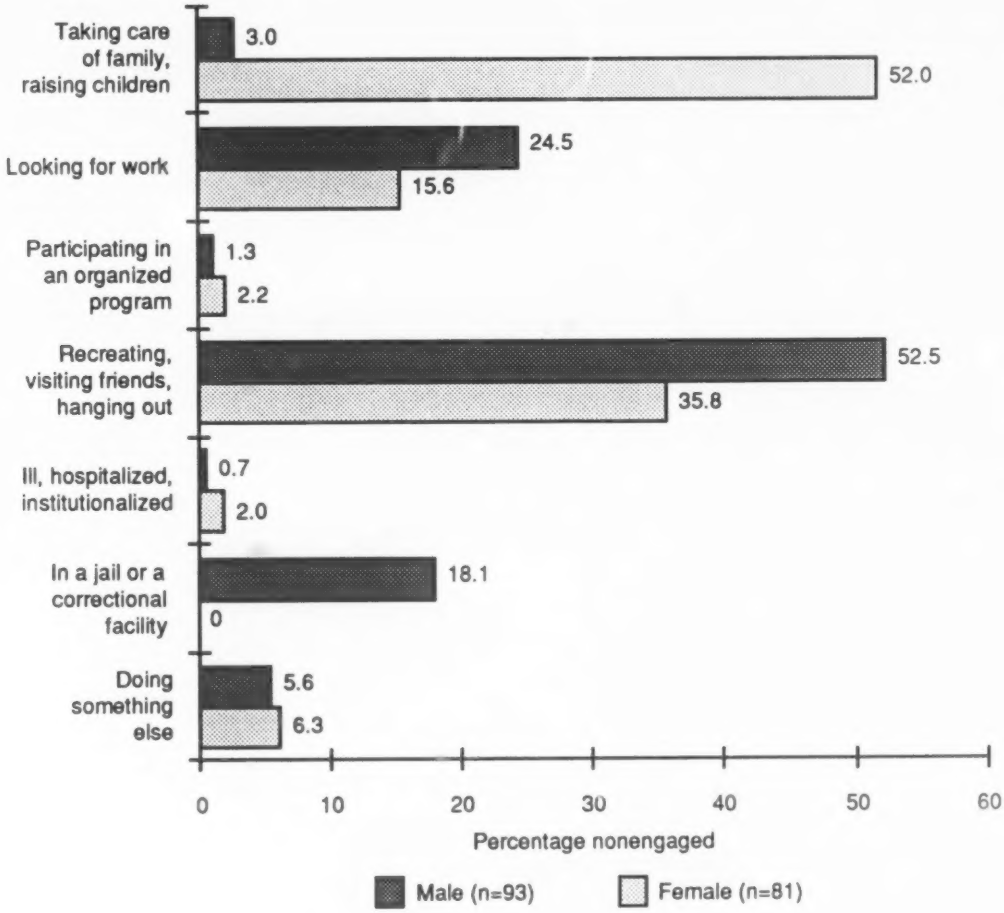

FIGURE 10-5 VARIATIONS IN ENGAGEMENT BY GENDER

Source: 1989 parent/youth interviews.

These data suggest that if data had been available from the 1987 interviews to count as engaged the activities of taking care of family, looking for work, or participating in an organized program other than school or training (in addition to working and postsecondary education), engagement rates would be higher for disabled youth who had been out of school 2 to 4 years (86% vs. 76%). Furthermore, engagement rates for women would be the same as for men (84% vs. 87%). However, even by this standard, 1 of 8 exiters would still be nonengaged.

Summary

This chapter has suggested the following about the engagement in productive education- or work-related activities outside the home for youth with disability who had recently left secondary school:

- To what extent did youth make the connection to employment, postsecondary education, or both shortly after leaving secondary school? A sizable percentage of youth with disabilities (23%) were not engaged in productive educational or work activity outside the home between 1 and 2 years after leaving secondary school. Paid employment was the most common form of productive engagement, with 93% of engaged youth who were out of school 1 to 2 years working for pay. Engagement was most common for youth who were hard of hearing (87%), learning disabled (85%), or deaf (83%) and lowest for those with multiple handicaps (45%).
- What were the characteristics of youth with disabilities who became productively engaged in education- and work-related activity, and how did they differ from other exiters? Higher functional abilities and other personal characteristics, including higher socioeconomic status, being male, and being single, were significantly related to higher engagement rates. More importantly, high school graduation and having taken occupationally oriented vocational education in the last year in secondary school also were significantly related to a higher probability of being engaged.
- Did engagement rates for youth with disabilities improve or decline over time? How dynamic was engagement? Levels of engagement were relatively flat. Using data from the exiter substudy, we find that 69% of youth with learning disabilities, emotional disturbances, speech impairments, or mild/moderate mental retardation were engaged when they were out of school 1 to 2 years, and 76% were engaged 3 to 4 years after secondary school, not a statistically significant difference. Engagement status for 74% of youth was the same both shortly after high school and 2 years later; 59% were engaged at both times and 15% were not engaged at either time. Among those with a changed engagement status, more became engaged (16%) than became nonengaged (9%).
- To what extent were youth with disabilities who were not engaged receiving services that could enhance their productivity in the future? Few youth were receiving services related to their disabilities, regardless of whether they were engaged. For example 9% of nonengaged youth were reported to be receiving counseling or therapy, compared with 6% of engaged youth.

- To what extent were nonengaged youth having other types of positive experiences? What were the social experiences of engaged and nonengaged youth, and how did the two groups differ? Nonengaged youth were less likely to be socially involved that engaged youth. For example, 23% of engaged youth were reported to have belonged to a school or community group in the preceding year, compared with 10% of nonengaged youth.
- To what extent were youth who were not employed or attending school participating in other types of productive activity (e.g., keeping house, taking care of children, looking for work)? The most common activity in which nonengaged youth were reported to spend most of their time was in recreation, visiting friends, or "hanging out" (46%). One in 4 nonengaged youth spent most of their time in family or child care, while 1 in 5 were looking for work. Substantial differences in gender were apparent in how nonengaged youth spent their time; 52% of nonengaged young women were involved in home or child care, while 52% of nonengaged men were involved in recreation, visiting friends, or "hanging out."

When we extend our look at transition outcomes after secondary school beyond the traditional focus on employment and postsecondary education, we find that a larger majority of youth with disabilities had made a successful transition to productive activities outside the home. However, we must also recognize the wasted human potential implied in the fact that more than 1 in 5 youth had not done so in the first 2 years after secondary school. Although slight gains were noted in the subsequent 2 years for youth in some disability groups, clearly challenges remain in supporting youth with disabilities as they seek productive roles as young adults.

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11 REFLECTIONS

by Mary Wagner

This report examines the transition experiences of young people with disabilities in secondary school and in the early years afterward and asks the question, "How are they doing?" In various chapters of the report, this question has been considered in light of specific outcomes: school completion, employment, independence, and postsecondary education.

Here, we look across the topic areas of individual chapters, taking a step back from specific experiences and outcomes to synthesize what we have learned about youth with disabilities and their transition experiences. In this chapter, we suggest themes or stories that emerge when findings from various chapters are combined. First, we reflect on what we have learned about how youth with disabilities are doing, both as a whole and when specific subgroups of young people are considered. We then comment on the transition process through which they are moving. We offer observations about the roles of schools and opportunities they may have to support students with disabilities in their transitions, and then look at youths' activities in arenas outside of school. Finally, future directions for the NLTS are highlighted.

How Are Young People with Disabilities Doing?

Looking across the transition outcomes the NLTS has measured, we find that about two-thirds of youth with disabilities who received grades in secondary school passed all their courses in their most recent school year, 41% belonged to a school or community group, and 86% saw friends outside of school at least one day per week. More than half of students who had left school were graduates. Seven of 10 youth who had been out of secondary school up to 2 years had held a paid job in the previous year; 14% had enrolled in some form of postsecondary education or training; and 12% had established independent living arrangements. These were significant achievements for many youth.

However, there is a flip side to these achievements, and it is sobering. One-third of youth with disabilities failed at least one course in their most recent year in secondary school, more often in regular education than in special education classes. One-third of youth who left secondary school did so by dropping out. More than 85% of youth out of secondary school had not attended a postsecondary school in the preceding year; 30% had not held a paid job; and almost one-fourth had not been engaged in any productive activities related to work or schooling. More than half of out-of-school youth were not competitively employed at the time of the NLTS interviews. Almost 1 in 5 had been arrested.

How do we interpret this mixed bag of transition experiences? Whether the transition outcomes of youth with disabilities are represented by a glass that is half empty or half full depends in part on the expectations we have for these young people, the yardstick against which we assess their achievements. The experience of the general population of young people is one yardstick used throughout this report. By this standard, youth with disabilities as a whole were doing poorly. For example, they were more likely to have dropped out of school than youth as a whole. After high school, they were less likely to be employed and, if employed, were likely to earn lower wages than their peers in the general population. They were less likely to have obtained additional education after high school and were much more likely to have had trouble with the criminal justice system that resulted in arrest.

We might speculate that youth with disabilities had greater difficulty in transition than young people as a whole because they were more likely than the general population to have characteristics often associated with difficult transition experiences. For example, they were twice as likely to have annual incomes of less than $12,000 per year. They were disproportionately black, from urban areas, and from single-parent households. However, analyses reported here demonstrate that these demographic differences do not explain much of the difference between the general population and youth with disabilities in employment rates, postsecondary school enrollment rates, or several of the other outcomes we have examined. When compared with a group of youth in the general population with similar demographic characteristics, youth with disabilities continued to show a consistent pattern of poorer transition outcomes. Barring significant changes in their circumstances, youth with disabilities will continue into adulthood to be disproportionately represented among the poor, the unemployed, and the incarcerated.

This picture of youth with disabilities as a whole is discouraging. Fortunately, it is also only part of the story. No matter what area of transition we have examined, the data have continually demonstrated the extreme diversity of experiences among youth with disabilities. In that sense, there is no such thing as "youth with disabilities as a whole." In many ways, they differ as much from each other in abilities, disabilities, and experiences as they differ from the general population of young people. A comparison of youth with disabilities and youth in general masks this extreme variation and obscures the successes that are apparent.

For example, although the problem of early school leaving was prevalent among students classified as learning disabled or emotionally disturbed, students with sensory or orthopedic impairments graduated from high school at virtually the same rate as the general population of students. Similarly, finding paid employment after high school was a serious challenge for youth with severe disabilities; for example, fewer than one-third of out-of-school youth with multiple impairments had held a paid job in the previous year. However, more than three-fourths of youth with learning disabilities had held paid jobs, a rate approaching that of the general population.

Clearly, to gain an understanding of the experiences of youth with disabilities, we must look at their diversity; we must look within the full population of youth with special needs and recognize that it is made up of many different populations, each of which has its own set of special needs. A program designed to ameliorate problems leading to dropping out of school might well be pertinent and beneficial to youth with emotional disturbances, but would be largely irrelevant to youth who were deaf, youth who dropped out at a rate significantly lower than that of the general population. Similarly, vocational training programs might be relevant and beneficial to youth with learning disabilities, most of whom left secondary school for employment, but misdirected for many youth with visual impairments, who attended college after high school at a rate approaching that of students as a whole. Individualization must continue to be the hallmark of programs for youth with disabilities if they are to accommodate the diversity of young people they are designed to serve.

Variations in Patterns of Transition Experiences

Throughout this report, an understanding of the important variations among youth with disabilities has been reflected in the care with which we have distinguished youth by their primary disability category, by their gender, or by other factors that capture important differences in their experiences and outcomes. We cannot summarize here the stories told about each group of young people that may be of interest. However, below we summarize some of the findings regarding several groups that have emerged most powerfully as we have reflected on the information the NLTS has generated thus far.

Youth with Emotional Disturbances

Every young person with disabilities faces unique challenges related to the precise combination of his or her personality, abilities, and disabilities, which together help to shape transition experiences and outcomes. The challenges facing youth classified as emotionally disturbed and their difficulties in transition are particularly troubling in their implications for the schools.

Youth classified as having serious emotional disturbances demonstrated a pattern of disconnectedness from school. They often were absent from school, and only about 1 in 3 were affiliated with school or community groups. They had lower grade point averages than youth in any other category and were more likely to have failed courses and to have been retained in grade at the end of the year. This disconnectedness and academic failure culminated in students with serious emotional disturbances having the highest dropout rate of all youth with disabilities; 5 of 10 students classified as emotionally disturbed who left school did so by dropping out. Behavior problems were cited as the reason for dropping out more often for youth in this category than any other.

For some youth classified as emotionally disturbed, the inability to develop social bonds or adapt to social norms spilled over into other aspects of their lives. One in 5 secondary school students with emotional disturbances had been arrested; among youth out of school, this percentage was 35%, the highest of any group of young people. Those with emotional disturbances also continued to be the least likely to belong to social or community groups after high school.

However, for many youth classified as emotionally disturbed, when we look at aspects of life other than schooling, the dramatic differences between them and other youth moderate significantly. Youth with emotional disturbances had among the highest employment rates while in school and earned wages comparable to those of youth with learning disabilities, for example. After high school, they were as likely as other youth with disabilities to be working, to be working for comparable wages, and to be living independently. As the years passed after high school, rates of competitive employment continued to increase, though in small increments.

One must wonder at the disjuncture between the performance of these youth in school and their generally more positive performance in some of the other aspects of their lives. What was it about the match, or mismatch, between the needs and characteristics of these youth and the expectations and programs of the schools that made for such pronounced disconnectedness from school, academic failure, and drop out behavior? Unfortunately, the NLTS provides only the basis for raising the question, not its answer. Further research on youth with emotional disturbances and their school programs and experiences clearly is needed.

Youth with Visual Impairments

In contrast to youth with emotional disturbances, most young people with visual impairments were succeeding in school. Visually impaired youth in regular high schools were more likely than youth with other kinds of disabilities to be in academic programs. They were largely educated in the mainstream; almost half took all their courses in regular education classrooms, another quarter spent more than 75% of their instructional time mainstreamed. Despite the significantly higher likelihood of course failure for disabled students who spent relatively more time in regular education, students with visual impairments had among the lowest course failure rates. They had the highest percentage of students with "A" averages and the highest overall GPA of students in any disability category. Seven of 10 youth with visual impairments leaving secondary school graduated; their dropout rate was among the lowest. This relative success in secondary school was mirrored in higher postsecondary school enrollment rates. Youth with visual impairments were more likely than any others to attend college after high school.

However, the working world was not similarly rewarding for many youth with visual impairments. Only 23% of these youth who were no longer in secondary school had competitive paid jobs, half the employment rate of youth with disabilities as a whole. Only half of youth with visual impairments out of high school up to 2 years had held a paid job in the preceding year, compared to 70% of all youth with disabilities. Among those who were employed, youth with visual impairments were significantly more likely than employed youth as a whole to be paid at or below minimum wage. One-fourth of youth with visual impairments out of school 1 to 2 years had not been engaged in either work or schooling in the preceding year, a rate of engagement no higher than youth with disabilities as a whole, despite their considerably higher rates of postsecondary school enrollment. Although high school graduation related significantly to a higher likelihood of employment and of engagement in productive activities, high employment and engagement rates were not found for youth with visual impairments, despite their high graduation rates.

Apparently, young people with visual impairments were having trouble parlaying their strong school performance into lucrative places in the workforce. Perhaps the increased skills they will acquire through postsecondary education and training will improve the employment prospects of the 30% of youth who were enrolled in such programs. For the majority who were not, jobs that paid above minimum wage were elusive, more so than for youth with many other kinds of disabilities. What obstacles to success were they encountering in the labor force that they did not encounter in school? Were there support services provided in school that contributed to their academic achievement but that were absent in the working world? Again, though we have learned much about the transition experiences of this group of young people, additional questions have been raised that should help shape future research agendas.

Severely Impaired Youth*

Throughout this report, we have demonstrated the devastating corollaries of severe disabilities. Overall, only 4% of youth were reported by parents to perform basic self-care skills poorly. Only 8% were reported to perform functional mental skills poorly. Only 8% had IQ scores below 50. The severity of their disabilities affected virtually all aspects of their lives, both in and out of school.

Youth with such severe deficits in functional abilities were not engaged in the most common postsecondary pursuits. For example, among young people with multiple impairments who were not institutionalized, only 8% were competitively employed in the first 2 years after leaving secondary school, and another 8% had found paid employment in a sheltered workshop.

A focus on such outcomes as school grades, employment, or postsecondary education largely overlooks youth with the most severe impairments. Such a focus teaches us about what youth with severe impairments *were not* doing, but provides little insight about what they *were* doing. Few students with severe disabilities received grades in school, so that common measures of school performance are irrelevant. Knowing that they did not often find jobs after high school tells us little about what did fill their days.

After the extensive data collection and analysis entailed in the first years of the NLTS, the outcomes of young people with severe impairments remain the least illuminated. The 1990-91 data collection broadens the range of activities examined for youth with severe disabilities in an effort to fill in some of the gaps in our understanding of the particular paths they took in transition.

We have learned somewhat more about the school experiences of severely impaired youth than we have about their outcomes, and what we have learned is troubling. Most youth with severe impairments were not assigned to a grade level. Although one might expect that the educational programs of such students would emphasize training in life skills and prevocational skills, students not assigned to a grade level were less likely than students at grade levels to have had access to life skills training, to prevocational training, to job counseling, or to occupationally specific job skills training; half or fewer of students not assigned to grade levels had access to such programs. Only 1 in 3 students not assigned to a grade level took occupationally oriented vocational education in their most recent year.

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* See Appendix C for a definition of "severe impairments."

Youth with low functional abilities who attended regular schools averaged only one class in regular education, usually a nonacademic class. We must wonder how youth with severe impairments are to acquire the skills and behaviors needed to maximize their independence after high school if traditional avenues for life skills and vocational instruction and for mainstream social interactions are not available to them in secondary school.

Young Women with Disabilities

NLTS analyses demonstrate the importance of the gender distinction among young people with disabilities. Young women with disabilities had different experiences in secondary school and followed markedly different transition paths afterward than their male counterparts.

To begin with, female special education students tended to be somewhat more severely impaired than their male counterparts. Across disability categories, the IQ scores and functional abilities of young women were significantly lower than those of males; even within several disability categories, patterns of marginally lower abilities were apparent. Despite these differences, female students who received grades in their secondary school courses generally received higher grades and were less likely to fail courses than males, independent of disability and demographic factors. Despite better academic performance, they were no more likely to complete school than male students or to attend postsecondary schools after high school. Even among high school graduates, fewer young women found jobs, and, when employed, they earned less than males and were more likely to have jobs in service occupations. When compared with youth in the general population, young women with disabilities lagged farther behind their nondisabled counterparts than did young men. Looking at youth with disabilities as a whole obscures the particularly pressing transition difficulties of young women with disabilities.

Part of their relatively greater difficulty in transition may result from a lower rate of participation in programs to support them in preparing for transition. For example, occupationally oriented vocational education appears to have the potential to help youth with disabilities to stay in school and to find competitive employment later. However, female students were significantly less likely than males to have received occupationally related vocational training in high school or to have received it as early in their high school careers, before they were prone to drop out.

Part of the difficulties faced by young women with disabilities also may relate to the demands of parenthood. Although female students dropped out at about the same rate as men, their reasons for dropping out were different. For example, parents of 23% of female dropouts with disabilities reported parenthood or marriage as reasons for dropping out, reasons reported for only 1% of male dropouts. Among women not engaged in work or schooling after high school, family responsibilities were cited by a majority as the chief claim on their time, although the average age for these young women was 19. Even though married women were significantly more likely than other youth with disabilities to have achieved an independent living arrangement, we have to wonder at the prospects for future financial independence of teenage girls with disabilities who were shouldering household and family responsibilities at so young an age. It would seem that programs to improve the transition and adult prospects of young women with disabilities must acknowledge the frequency of their role as mothers and caregivers for other family members and accommodate those demands if they are to be effective in preparing young women for more financially secure and independent lives.

Poverty and Youth with Disabilities

We have demonstrated that students with disabilities were significantly more likely than students as a whole to be from households with lower incomes and less well-educated parents. They were more likely to be black and to come from single-parent families. They were less likely to be going to school in suburban areas. These characteristics were not independent of each other, but often clustered. For example, of youth from households with annual incomes of less than $12,000 per year (35% of youth), 52% also were minorities and 62% were from single-parent households.

This prevalence of economic disadvantage raises two concerns. First, findings in this report and in other NLTS research suggest that youth from lower-income households had different kinds and levels of service in school and in the postschool years. For example, students from lower-income families spent significantly less time in regular education classes than did higher-income students, irrespective of their disability category, functional abilities, or other demographic characteristics. Students from low-income families were marginally but consistently less likely to have received a variety of support services than were higher-income students. For example 49% of youth from households with annual incomes of less than $12,000 had received vocational services in the previous year, compared with 58% of youth from households with incomes of $25,000 or more; similarly, figures for occupational therapy were 8% vs. 14%. Further, in the context of adult services, youth from lower-income households were found to be consistently less likely than those from more affluent families to have applied for services to a Vocational Rehabilitation agency after high school and, once applying, to have received services (Wagner and Cox, 1991).

A possible explanation for this pattern of findings is suggested by recent research conducted for the International Center for the Disabled (ICD, 1989). In interviews, parents of children in special education were asked how much they felt they knew about the rights they and their children had under the Education of the Handicapped Act. Rates were consistently and significantly higher for more affluent and better-educated parents. Hence, perhaps the NLTS finds lower levels of service for children from lower-income households and from households with less well-educated heads in part because parents were less knowledgeable about and less active in seeking services for their children.

The second concern with the pattern of NLTS findings relating to poorer youth with disabilities is that, for virtually all outcomes we have examined, young people who were economically disadvantaged were less likely to be doing well, independent of their disability characteristics and their levels of service. Students from single-parent households were absent from school more, as were students from poor families; being both poor and from a single-parent household was even more powerfully related to poor school attendance. Similarly, students from poorer families were less likely to belong to social groups while in school; poverty and lack of group affiliations both contributed to a greater likelihood of receiving failing grades. Socioeconomic status also was significantly related to whether youth out of high school had enrolled in postsecondary schools or had become engaged in any productive work- or education-related activities in the preceding year. These findings mirror much of what is known about the effects of low socioeconomic status for the nondisabled population; disability does not override, mask, or mediate the negative effects of poverty.

This pattern suggests that youth with disabilities who also were economically disadvantaged had two strikes against them. Educational and support programs that attempt to compensate for or ameliorate the effects of disability, but that do not address the difficulties resulting from poverty, may not meet the needs of youth who experience both. The special needs of these youth extend beyond the difficulties created by disability, which traditionally has been the focus of their special education. A broader view of their educational and social needs seems warranted.

Schools Can Make a Difference

The focus in this chapter thus far has been on synthesizing findings regarding how youth with disabilities are doing, as a whole and from the perspective of selected groups of young people. Our synthesis of findings also suggests several conclusions regarding the transition process depicted in the conceptual framework in Chapter 1, particularly about the role of schools in that process.

The Link Between Secondary School and Postschool Outcomes

The findings presented here support the notion depicted in the conceptual framework that transition is a multiyear process that begins in secondary school. Students' experiences in secondary school can and do help to shape their experiences and accomplishments after leaving school.

School performance has a powerful relationship to school completion. Findings in Chapter 5 indicate that, in a given year, about 11% of students with disabilities dropped out, rather than staying in school, graduating, or aging out. Students who missed more school and those who failed a course in their most recent year in school were more than half again as likely to drop out than students who had better attendance and were passing all their courses. Further, findings in several other chapters support the strong link between school completion and later transition outcomes. Students who graduated from high school were on an upward trajectory into their early adult lives relative to students who dropped out. High school graduates had almost a 17 percentage point greater probability of finding a paid job after high school, compared with students who dropped out, when demographic and disability factors were controlled. Graduates had a 14 percentage point greater probability of participating in some form of postsecondary education after high school than did dropouts, also controlling for other differences between youth. Graduates 1 to 2 years after high school had a 27 percentage point higher probability of being engaged in either work or schooling in the preceding year than did nongraduates, other factors being controlled.

These findings should be heartening to educators who serve students with disabilities. They can influence the transition outcomes of their students by performing effectively their primary educational mission. If they can engage their students in school and help their students to perform up to their ability and to school expectations, they will have gone far toward ameliorating the propensity toward early school leaving. If successful in helping students to complete school, they will have gone far in launching those students on a positive path into adulthood.

The importance of high school completion in charting a positive course into adulthood requires that educators, researchers, and policymakers look carefully at ongoing efforts to increase course credit and competency requirements for high school graduation. These efforts are based in frustration with the inadequate skills of too many high school graduates. The status of high school graduate is intended to convey academic achievement. Awarding high school diplomas irrespective of achievement is poor educational practice. However, raising standards for course taking and achievement without instituting programs that help all students with the potential to meet those standards to do so also is poor educational practice. Many students with disabilities were struggling at the margins of academic achievement standards; more effective programs and instructional practices are likely to be required if those students are to meet increased standards and successfully complete secondary school. If they fail, their prospects in later years are not hopeful.

Elements of School Programs Related to Youth Outcomes

We have examined the relationships between several aspects of students' school programs and their outcomes, both in secondary school and in the early years after high school. Findings are summarized below.

Occupationally Oriented Vocational Training

NLTS findings provide support for the effects of education in general on later outcomes. The findings in this volume also suggest some potential leverage points in achieving schools' educational mission. One educational intervention that appears to hold potential for positive school performance as well as positive postschool outcomes is occupationally oriented vocational education. Across several of the outcomes we have examined, students who had taken occupationally oriented vocational education in their most recent school year were significantly more likely than nonparticipants to register positive outcomes, independent of characteristics of students who were enrolled. Students who took occupationally oriented vocational courses had significantly lower absenteeism from school and a significantly lower probability of being retained at grade level and of dropping out of school, when demographic and disability differences between students were controlled. Independent of its effects on students' decisions to drop out, having had vocational training was significantly related to a higher likelihood of finding competitive jobs and of being engaged in productive education- or work-related activities after high school.

The explanation for the apparent benefits associated with occupationally oriented vocational education is less clear than its relationship to various outcomes. School bonding theory would suggest that perhaps occupational vocational training was perceived as more relevant than academic programs to the interests of students with disabilities, the large majority of whom did not go on to postsecondary education. From this perspective, establishing the relevance of educational programs is seen as a key factor in engaging students actively in their education. Perhaps different standards for student performance in occupationally oriented vocational classes enabled students to feel that they could succeed and to persist in school. Perhaps occupational vocational students acquired better work skills and behaviors through their training that enabled them to compete more effectively in the labor market.

Whatever the combination of explanations, a consistent pattern of positive outcomes has emerged in relation to occupationally oriented vocational training for students with disabilities. Yet, only about 56% of students had such training in their most recent school year. Occupationally specific vocational education was not common for students until they reached the upper grades; for example, only 35% of 7th- or 8th-graders took such courses, compared with 59% of those in 9th or 10th grade and 72% of those in 11th or 12th grade. Those not assigned to a grade level were least likely to have had occupational training (38%). Young women also were significantly less likely than men to have had training in job skills for a particular type of occupation (44% vs. 55%).

One conclusion from these findings might be that an expansion of opportunities for occupational training for students with disabilities is needed. However, a note of caution is in order before we embrace this conclusion. Although occupationally oriented vocational courses are related to positive outcomes for students with disabilities as a whole, we recall our earlier admonition regarding the pitfalls of programming for students "as a whole." Enrolling many students with disabilities in occupational courses may well help them in school and beyond. For others, however, such tracking may limit opportunities to take academic courses that could enable them to pursue a college education or further postsecondary training. Occupationally oriented vocational training should be an option available to secondary students with disabilities; a decision as to whether a given student receives such training must reflect the interests, aspirations, and abilities of that student.

Regular Education Placements

More equivocal findings have emerged regarding some other educational programs or strategies. In particular, we find both good news and bad news regarding the relationships between the extent to which students spent their instructional time in regular education classes and various school and postschool outcomes.

In Chapter 3, we learned that almost 2 of 3 students spent the majority of their class time in regular education, with an average of 56% of time. Students who spent more of their class time in regular education placements were higher-functioning youth and those from higher-income households, both of which should bode well for their academic achievement.

However, in Chapter 4, we reported that grade point averages for regular education classes were significantly below those for special education classes. Further, students with disabilities who spent more of their instructional time in regular education classes were significantly more likely to have failed a course than students with fewer regular education courses, when other aspects of the students' demographics, disabilities, and educational programs were controlled for in the analysis. Regular education was a tough environment academically for many students with disabilities. For many, it may have been an inability to achieve in regular education classes that led to their placement in special education originally. Many students were continuing to find regular education classes to be environments for experiencing academic failure.

But academic goals are not the only ones to be served by placing students with disabilities in regular education settings. Part of the intent of mainstreaming is to enable students with disabilities to relate to their nondisabled peers and to model behaviors appropriate to the mainstream. The NLTS suggests that this social goal is being met for some students. Students with disabilities who spent more of their time in regular education were less likely to be socially isolated than others and more likely to be affiliated with school or community groups, controlling for other differences between them. Once they left high school, students who spent more time in regular education were more likely to have gone on to some kind of postsecondary education, independent of their disability, individual, and household characteristics.

The rather mixed findings regarding regular education environments suggest the need to look beyond environment to educational experiences. What went on in secondary school regular education classes? Although many students with disabilities were failing in those courses, the majority were not. What accounted for the difference? Were instructional approaches or forms of support used in some classes that enabled students to succeed there and whose absence in other classes might explain student failure? Were differences in achievement in regular and special education classes simply a matter of special education having lower educational standards, or were there specific obstacles in some regular education classes that could be circumvented to improve student performance? Was there something about the match between some students and some classes that enabled them to succeed when other students, perhaps mismatched students, failed? We need to understand more about the experiences of secondary school students with disabilities in regular and special education if placement decisions are to be truly appropriate to individual students.

Life Outside of School

The conceptual framework of the transition process that has guided our work has directed our attention not just to educational experiences but to aspects of youths' lives outside of school as well.

Work Experience During High School

In Chapter 8, we outlined the dimensions of the ongoing debate regarding the value of work experience during high school. Some research has suggested that paid jobs detract from time that could be devoted to school work or to friendships, with negative academic and social consequences. The "premature affluence" of youth who work also could support a propensity to drug or alcohol use (Bachman, Johnston, and O'Malley, 1981). On the other hand, the work skills and behaviors learned while in high school could benefit youth, perhaps particularly those with disabilities, when they enter the workforce after high school.

Across several chapters of this report, a consistent pattern of positive findings has emerged regarding the influence of work experience during high school on various outcomes. When demographic and disability factors were held constant, having a job during high school was associated with positive outcomes, although not in all cases were relationships statistically significant. For example, students who had held jobs in the most recent school year tended to be absent less, and were less likely to receive failing grades, to be retained at grade level, or to drop out of school. In the social arena, positive and significant effects were noted for youth who had jobs, even when differences in disability, functional abilities, and other behaviors were controlled for. Students who had jobs were significantly more likely to have group affiliations while in secondary school than were unemployed youth. Finally, work experience during high school appears to have beneficial postschool vocational effects, independent of having had vocational training; it was significantly and positively related to finding paid employment after high school.

Despite this pattern of positive relationships between work experience during high school and various transition outcomes, only about 15% of students were reported by parents to be participating in school-sponsored work-study programs. Only about half of students were reported to have held a paid job in the previous year, whether sponsored by the school or found independently. Clearly, there is room to expand the rate at which secondary school students with disabilities acquire work experience while in school.

Social Activities

In examining the social activities of youth, we have focused largely on the frequency with which youth saw friends socially and the rate at which they belonged to school or community groups. Our initial expectation regarding these facets of socialization was that they would act in tandem, that is, that youth who saw friends often also would belong to groups often. Further, we expected that the two measures would relate to other outcomes in similar ways, for example, that youth who belonged to groups and those who saw friends often would be better performers in school. We were surprised to discover that frequency of activities with friends and group membership are largely independent of each other. They also relate to several other outcomes in opposite ways. Findings regarding the two measures are summarized below.

Group Affiliations

We have seen a consistent pattern of positive outcomes for students who were engaged in school or community groups. Students who found a niche in organized groups had significantly lower school absenteeism, better grades, and a lower likelihood of dropping out of school and of being arrested.

There could be several explanations for these relationships. Perhaps having group affiliations increased students' commitments to school as a place that had social as well as academic value. Alternatively, perhaps the kind of young person who belonged to groups, with the commitment to group norms that such membership implies, differed from nonmembers in important and unmeasured ways and it was the difference in youth that explains positive outcomes for group members. Either explanation supports the importance of young people's identifying with social institutions, accepting and internalizing social values and norms, and learning social skills and behaviors that will enable them to have positive experiences in social organizations. These are aspects of good citizenship. Good citizenship and the behaviors it entails can be taught at home and at school, beginning at an early age. Schools can support a wide variety of social, hobby, athletic, service, leadership, and other groups so that students with widely diverse interests and abilities have opportunities to establish social affiliations and exercise the roles and behaviors of good citizenship. NLTS data suggest that young people who have established such social affiliations benefited in many ways throughout their secondary school careers and early adulthood.

Frequency of Getting Together with Friends

In contrast to the positive social aspects of group memberships, troublesome findings have emerged regarding young people who were reported by parents to get together with friends often. More than one-third of youth with disabilities were reported to see friends outside of school 6 or 7 days a week. Students who got together with friends this frequently outside of school had significantly higher absenteeism from school than did students who were less actively involved with their friends outside of school. Independent of their level of absenteeism, students who got together with friends frequently also were significantly more likely to have failed one or more courses in their most recent school year. High absenteeism and course failure were among the strongest predictors of dropping out of school.

After high school, those who were more socially active with friends were significantly more likely than others to have been arrested. Among those out of school who were not productively engaged in work- or education-related activities, "hanging out" and "seeing friends" were the most commonly mentioned activities used to fill time, particularly among males.

It is important to note that frequency of activity is the only dimension of friendships that was measured in the NLTS; the nature and quality of friendships were not addressed. If an indicator of "good" friendships vs. "bad" friendships were introduced into the analysis, it is possible that frequency of contact would have been related to outcomes in a different way. Perhaps, for example, seeing friends often who exert a positive influence would be related to positive outcomes. However, without such a measure of quality, we are left with a troubling picture of the potential effects of high levels of social involvement with friends.

Perhaps it is the sheer amount of time invested in social activities that contributed to the negative relationships we have observed; a great deal of time spent with friends simply may take time away from other productive activities. Perhaps social activities, which may last late into the evening, make it difficult for students to get up and go to school, resulting in higher absenteeism. Perhaps such activities detract from time to do homework, leading to a reluctance to go to school unprepared and to poor grades. Perhaps if peers exert an undesirable influence, more frequent contacts with them lead to involvement in delinquent or criminal activities resulting in arrest. Whatever the underlying dynamics of the relationship, NLTS findings suggest that parents attention to very frequent social activities outside of school may be warranted for young people with disabilities.

Future Directions of the NLTS

The focus of the NLTS thus far has been on students with disabilities while in secondary school and in the first year or two afterward. Findings regarding that time period paint a picture of both significant achievements and wasted potential. We have documented the significant variations in experiences and outcomes for young people who differed in their disabilities, their economic status, and their gender. We also have highlighted what seemed to help and what seemed to hurt as these young people moved through their different transition processes.

However, we recognize adolescence and early adulthood as times of rapid change. Hence, the NLTS is a longitudinal study, a design chosen to capture the fluctuating statuses and experiences of young people with disabilities as they age. We are taking stock of these young people again in 1990 and 1991. By comparing their more recent experiences with findings from 1987, paths into adulthood for youth with disabilities will be better described.

Although longitudinal analyses for all youth in the NLTS must await further data collection, we already have a first glimpse of the changes and developments youth were experiencing after high school for a group of young people who were classified as learning disabled, emotionally disturbed, speech impaired, or mildly or moderately mentally retarded and who were out of school in 1987. We have cause for some optimism in the findings reported for these young people. When they were out of secondary school 2 to 4 years, employment rates were climbing, wages were increasing, and independent living arrangements were becoming more common than in the first year or two after high school. However, the educational arena appears still to be a challenge for most young people. Few dropouts were completing their high school educations, and postsecondary school enrollment remained low as youth gained distance from their high school educations.

The coming years of the NLTS will focus on trends such as these for youth with all types of disabilities. Subsequent reports will address key issues in the transition of these young people as many of them move into their early adult years.

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COMMENTARIES

TRANSITION FOR AMERICA'S STUDENTS—PROGRESS MADE, ACTION NEEDED

by Alan Abeson, Ed.D.[*]

Without question, the major effort invested by the disability advocacy community since 1975 regarding education has been to ensure that all eligible children and youth with disabilities throughout the nation have access to an appropriate public education. A more recent focus has been determining the effectiveness of the educational programs these students receive. It is the outcomes of these assessments, well represented by *Youth With Disabilities: How Are They Doing?* by Wagner et al. (1991), that will, in part, shape the future national education and related advocacy agendas for children and adults with disabilities.

This work is particularly timely for several reasons. First, the children with disabilities studied by the NLTS are representative of the first generation of students to enjoy the full benefits of P.L. 94-142. Second, because these children entered school with their educational entitlement secure, their parents, unlike prior generations, did not need to engage so actively in advocacy to obtain educational opportunity for their children. However, these same parents have learned that, as their children approach adulthood, there is no additional entitlement beyond secondary school. It is then, late in their children's school careers, that many parents become very concerned with the transition of their children from school to productive postschool activity. Finally, the passage of the Americans with Disabilities Act in 1990, coupled with the changing work force demographics in the nation, means that employment opportunities for these potential workers have never been better.

A major focus of the NLTS is on young people as individuals. The study findings significantly reinforce the fundamental principle of individualization that has been expressed by parents and professionals in their rhetoric and in public policy: the essence of providing an appropriate education is programming that is responsive to children as individuals, not representatives of categories. Specifically, the NLTS found that, within each of the categories of disability studied, youth had a wide range of characteristics and abilities. When examining the factors associated with determinants of productive postsecondary activities, it was revealed that functional differences, not the category of disability, were most significant. Further, despite the important influence of variations in functional abilities, some youth from all categories did obtain competitive employment and achieve other positive outcomes.

Such findings call for maintaining and improving public policies that support processes and resources for services to youth as individuals, as opposed to members of a category. The NLTS suggests the hopeful conclusion that schools are attending to individual student differences—it was found that the assignment of children with disabilities to more or less time in special or regular education settings did not occur as a result of categorical label.

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Attention to individuality involves expectations and aspirations, as well as services and programs. Without recognition of individual possibility, the achievements of individual youth during and after their school years could be unnecessarily dulled as a result of incorrect expectations held by professionals, parents, and students themselves, on the basis of a categorical label. Expectations can shape outcomes. For example, the NLTS found that youth with disabilities who spent more of their time in regular education settings pursued postsecondary education with more frequency than less mainstreamed students with similar disabilities. One explanation offered is that exposure to the traditional aspirations of students without disabilities may widen the horizons of those with disabilities, leading to better outcomes. It would be valuable as well to determine whether significant mainstream opportunities have the same effect on the occupational aspirations of students with disabilities.

While critical for professionals, avoiding predetermined decisions based on a youth's disability also is of great importance to parents. Assistance from knowledgeable professionals can make a difference in the way parents appraise the realistic possibilities for their child, and the ways they think about the youth and participate in planning his or her program, both in school and in the future. Avoiding decision making based on predetermined expectations (or more accurately, nonexpectations for many students) also contributes to how youth with disabilities think of themselves in general and, specifically, in relation to their occupational future.

Individualization will be more effective if consideration is given to the aspirations of students themselves. In the occupational arena, for example, many students with disabilities become employed in jobs often described in rehabilitation as the four Fs—food, filth, factory, and flowers. To what extent do they ever have the opportunity to express a preference based upon exposure to alternatives? This issue is particularly important in light of the use of new approaches enabling competitive employment to be obtained for many students who in the past would have been deemed unemployable or, at best, eligible for a sheltered setting.

Recognition of the variation in capabilities among students bearing the same categorical label, along with new ways of achieving successful school- to-work transitions, mandates that all future planning and decisionmaking specifically consider the abilities and aspirations of individual students. Including students in this process and enabling them to choose from meaningful options is consistent with educating them to become self-determining about their own lives, a general goal of education for all students.

The NLTS focuses not only on individual youth, but on the schools that serve them. This research vividly points out that the nature of the school experience provided for students with disabilities does make a difference regarding postschool prospects. Achieving graduation, receiving occupationally-oriented vocational education, obtaining work experience and functional skills training all were related to positive postschool adjustment. Unfortunately, many youth with disabilities do not as yet receive such services. Further, for all students in need of these services, it appears that with provision at an earlier age, and supplemented with follow-along by school and other community agencies, even better outcomes can be attained.

Although the study is encouraging in revealing that school programs can make a positive difference, the distance yet to travel, however is troubling. For example, within the schools, a serious concern raised by the study was the nature, needs, and opportunities given to students who were described as ungraded and/or multiply handicapped. It was reported, for example, that "students classified as multiply handicapped not only were least likely to have taken vocational courses, but once enrolled in such courses, their courses were least likely to have involved occupationally oriented training" (page 3-12). Similarly, "students not assigned to a grade level were less likely to have taken vocational education in their most recent school year than other students....Unassigned students were significantly less likely to be enrolled in vocational education at all and less likely to be in training that was occupationally oriented" (p. 3-13/14). Not surprisingly, then, these students were least likely of all categories to achieve competitive employment. Clearly, what has been done for these students to date has been both insufficient and ineffective and must be remedied. Acknowledging that these students have more severe disabilities that affect their transition outcomes, there is a priority need to provide properly constructed, employment-focused programs for these students.

Perhaps most important, however, is closing the gap between parents and schools in terms of being aware of and appropriately exercising their respective responsibilities. The fact that "eight out of ten parents who did not have a high school education said they know 'not so much' or nothing about the rights of those served under P.L. 94-142" and that "lower levels of service (were provided) for children from lower-income households and from households with less well-educated heads, in part because parents were less knowledgeable about and less active in seeking services for their children" (page 11-8) is particularly worrisome. While schools may have reached out to these families, this evidence indicates that they have not been successful. Traditionally, advocacy groups and parent centers have typically not included members from less well educated or low-income groups, despite efforts to try to do so. Clearly, the schools and the advocacy community must revisit this need, devise new strategies and undertake new activities.

It appears from this study that for students who leave school and do not obtain employment within 2 years, future prospects are dim. This time period is a critical "moment" for societal intervention that has yet to be effectively arranged. It is the nexus when schools and various other agencies could lose track of an individual in transition. It is also a point at which, as indicated earlier, the entitlement for services is concluding. Further attention must be given by NLTS in their continuing research to locate students that have effectively moved through this "moment" so that the elements that "worked" can be identified and described for use in communities throughout the nation.

COMMENTARY ON NLTS REPORT
YOUTH WITH DISABILITIES: HOW ARE THEY DOING?

by Bud Fredericks*

My initial comment must be a compliment to the staff who compiled the vast amount of information found in the report, *Youth with Disabilities: How Are They Doing?* The data are impressive, the discussions are cogent, and the implications are many. Here, I first discuss the implications that I drew from the study. I then indicate study areas upon which the NLTS team might wish to focus its future efforts.

Implications of the Study

Wagner, in Chapter 11, summarizes her perceptions of the report and talks briefly about the glass that is half full or half empty (pages 11-1 and 11-2). I appreciate her optimistic outlook as she explores the half full concept. Normally, I too am optimistic and can see the tremendous progress we have made. But as I read the report, I could not help but conclude that it constitutes a major indictment of the school systems of the United States. Progress to provide quality programs has been very slow and the complete lack of programs in many cases is a national disgrace. Clearly, action is needed in several areas.

For example, it was disappointing to learn that special schools serving students who are deaf or multiply handicapped emphasized vocational and life skills training more than regular schools and also provided a greater emphasis on community-based experiences (Chapter 3). We can infer from the data that they are serving youth with more severe disabilities, especially in the multiply handicapped category. At the secondary level, we have long advocated for curricula that focus on community-based experiences, vocational skills, and life skills for those with severe disabilities. Moreover, most professionals thought that those could be best delivered at the neighborhood school (Sailor, Wilcox, and Brown, 1980). If public schools are not doing as well as special schools, those of us who have been advocating for educating those with severe disabilities in neighborhood schools either must conclude that our advocacy has been for naught, or that we must rethink our advocacy for neighborhood schools in favor of special schools.

I also read Chapter 4 on school performance with a great deal of concern. Given that school failure is so common among youth with disabilities, one must ask what has happened to the IEPs that are intended to specify programs in which students can succeed. The fact that failures are more common among those who are mildly disabled and who are more frequently placed in regular classes suggests that those settings may be inappropriate for many of them.

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Fredericks and Evans (1987) advocate for a functional curriculum for youth classified as learning disabled or emotionally disturbed who were functioning four grade levels behind their peers when they entered high school. Youth placed in such a curriculum maintained themselves in school and found school to be more relevant. Students can succeed in appropriate placements; when they don't, I consider it not as a failure of the student, but a failure of those who are doing the teaching and who planned the students' programs.

Another aspect of schooling that is cause for concern involves the failure of many schools to award regular diplomas to students with disabilities. The NLTS indicates that only 47% of graduates with mental retardation and one-third of graduates with multiple handicaps received regular diplomas. Although not specified in the report, in many cases the failure to receive a regular diploma results from state policy. For instance, Oregon students who do not meet minimum graduation requirements, but who attend school, are awarded certificates of attendance in lieu of diplomas. This policy is patently discriminatory to students with disabilities. Students with disabilities are following the course of instruction specified in their IEPs. This prescribed course of instruction often does not satisfy minimum graduation requirements, especially for students with more severe disabilities. Yet, this course of instruction has been agreed on by the school district and the student's guardians. If the student attends school and completes the course of instruction prescribed, he or she should be awarded a regular diploma, which indicates the completion of a prescribed course of instruction. Thus, I perceive this to be an area that parents and advocacy groups should pursue with state boards of education and individual school districts.

One theme that seems to run throughout the NLTS report is that students with behavioral disorders are most unsuccessful in school. They have a greater tendency to drop out of school; they have higher absenteeism, and they have a lack of social affiliation with school or community groups. This evidence indicates a major need within the schools to train staff at all levels, from principals to therapists and aides, to be better versed in conducting functional analyses to determine why behaviors occur, to alter environments to reduce the incidence of behavioral problems, and to create learning environments that are more conducive to retain learners in school. Schools also must focus more attention on good programs for students with severe emotional disturbances.

The failure of secondary schools to implement community-based vocational opportunities for disabled learners results in difficulties for students with disabilities after they graduate. For instance, the NLTS points out that those who had work experience were more likely to have a competitive job after graduation than those who did not. Hasazi, Gordon, and Roe (1985) and Fredericks et al. (1987) suggest that, even more important than the opportunity for work experience, is a student having a paid job at graduation, which translates into employment after graduation. Moreover, according to the NLTS, enrollment in occupationally oriented vocational education related to a lower probability of dropping out of school. Thus, a major advocacy thrust must be to encourage schools to institute community- based vocational experience for students before graduation.

Future Study Areas

Beyond the implications of current NLTS findings, the value of the study would be increased further if attention were given in its final years to several additional issues. One such issue involves the critical impact on transition outcomes of the severity of a youth's disability. Although the current NLTS work attempts to differentiate among various populations, too often data from various groups were merged to the point that some valuable information was lost. Youth need not only to be differentiated by category of disability, but by severity of disability as well. Certainly Wagner implies a need for this differentiation when she indicates that the population of youth with special needs "is made up of many different populations, each of which has its own set of special needs." Individualized needs would become especially apparent if the study could have reported data differentiated by severity of disability.

In some instances this differentiation is made. In Chapter 8, for example, data indicate that those with lower abilities had much less success in achieving competitive employment than those with higher abilities. That differentiation is made across three categories of disability—mentally retarded, visually impaired, and multiply handicapped. It would have been interesting to see similar data offered for those who are emotionally disturbed and learning disabled. I believe that in many instances different portraits would have been painted if the severity differentiation could have been made throughout the study. For instance, I was quite surprised by the high percentage of parents of children with mental retardation who expected their children to live independently in the future (page 7-31). If the data had been presented for those with mild, moderate, and severe retardation, I suspect that a relatively small percentage of parents with children who were moderately or severely retarded would anticipate that their children would live independently without support.

The severity issue applies also to the other disability areas. For instance, a youth who is learning disabled and is reading at the seventh grade level when entering tenth grade has a significantly different learning situation than one who is reading at the second grade level. The emotionally disturbed population has similar distinctions between levels of severity. Thus, I perceive a major future direction for NLTS is to reexamine much of the data gathered and report it to the extent possible by severity, in addition to disability category.

A second area to which greater attention could be given in the future is in the discussion of residential living, one of the more important considerations in transition. The latter part of Chapter 7 deals with changing residential arrangements over time. Certainly one of the major considerations that should be discussed is how the unavailability of group homes or supported living arrangements influences the opportunity for young adults to change their residential situation and move from their parents' homes. This consideration becomes especially pertinent for those with severe disabilities who will require some sort of support in their adult residences. The lack of focus on this area in the study was disappointing because the lack of resources for residential living is a major inhibitor of young adults transitioning successfully from their family homes.

In general, then, public schools and adult service agencies have a long way to go to provide adequate educational, employment, and independent residential experiences for young people with disabilities. The NLTS should do much to point the way for them. It will be incumbent upon advocacy groups, parents, and interested professionals to use the material presented in the report to assist the schools and agencies to move toward excellent programs for students with disabilities.

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THE NLTS REPORT: A PARENT'S PERSPECTIVE

by Teresa Middleton[*]

I am the mother of a now-adult daughter who is deaf. That said, I should state that disability labels can be misleading. Claire is truly deaf. She has absolutely no hearing in one ear and an 85% hearing loss in the other; yet, with the help of a powerful hearing-aid, she can hear sounds in the high decibel range, where much of regular speech resides. Hence, her voice is deceptively "normal." The fact that she speaks better than most people who are deaf has been both an advantage and a disadvantage. Generally she was accepted in school and, since then, at the various places she has worked, but her inability to fully comprehend spoken language often goes unrecognized. This creates its own set of problems that being obviously deaf and having poor speech skills would not. People assume that she can hear, and so she must ask them to speak up when she cannot hear them, and must ask them to clarify what they have said if she does not understand it the first time round.

Born in 1962, Claire's school experience spanned both pre- and post-PL 94-142 years. The passing of the Act, however, made less difference to her school life than it might have to others who were less advantaged. Claire was a student with a disability who had, demographically, everything going for her. From the time she was 4 years old, she attended school in Palo Alto, one of the richest school districts in California. She was in a very progressive oral program for children who were hearing impaired. There, children generally were mainstreamed into regular classrooms, but were brought back into the program for subjects with which they were having difficulty. The children were not taught sign language; indeed signing was, and still is, a very emotional issue with parents of children in the program.

So I am someone who has coached her child through school and into the workplace, and I am now in a position to look back and contemplate on what worked and what might have been done better. I approached the report *Youth With Disabilities: How Are They Doing?* with the overall question in my mind: what might have been done differently if I had had the kind of information contained in the report to guide me? Several more specific questions flowed from this main inquiry, and those questions guide my commentary.

What has this investment in information provided that is useful?

Clearly this is a a very important study. For the first time parents, teachers, policymakers, and others are able to see exactly what is happening to students with disabilities. Until now, none of us had a very clear picture. Of course parents were aware that there were thousands going through similar experiences to themselves, but they never really knew how similar the experiences were. For that reason alone, the NLTS is a plus for parents because it shows that they and their children are not alone; others are facing the same problems.

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Reading it as a parent whose child has left the system and has made her transition, I find the report confirms a number of Claire's experiences. I read, for example, about the kind of support available to students to help them start thinking about careers and about vocational education. The biggest gap my daughter felt in her high school experience was that she received almost no help in this regard. From the data, it appears this is not an unusual situation; girls really do seem to get less help in preparing for the workplace than boys. If I were a parent with a child still in school, these data might have encouraged me to question whether she was getting sufficient help, and if not, why not.

At the same time, though, if my child were still in school, the report would seem more like a series of snapshots of a situation that I already know something about, rather than a compendium of new information that I could use to take new action. It probably would jog my memory about things I needed to pay attention to (e.g., training in using the type of financial management tools needed by out-of-school youth with disabilities), but I would have to dig in the report for the specific information that was of interest to me. In spite of this, the report could be seen as a large checklist of things about which I should be aware. It might also verify some things I had always wondered about, but needed to have confirmed (e.g., the increase in employment rates according to grade level.)

On the whole, though, I believe I would still be looking for the reasons why certain things are happening, rather than just the facts that they are happening. For example, the NLTS reports the percentage of students in schools that provided job counseling. That is interesting, but as a parent, I would want to know what type of students received job counseling, and what relationships there are between receiving counseling and, say, finding a job.

What action does it suggest to me as a parent? What action would I hope policymakers, program designers, service providers, or researchers would take?

There are many areas where the report illuminates for me the differences between the experiences of the students with disabilities and those who have no disabilities. What is even more striking, in the employment area for example, is the variance in employment opportunity among students with disabilities according background characteristics (e.g., socioeconomic status, gender, minority status.) If it is true that "perhaps only youth with every other advantage, such as being white and having the resources that only higher SES families can bestow, can hope to find a niche in the labor market" (page 8-38), we do not seem to have achieved what we set out to achieve when we enacted PL 94-142. I would hope this fact would encourage program designers to pay particular attention to preparing all students for the labor market, including finding creative ways to work with industry to help find a niche for them once they have left the school environment.

What surprises me? What conventional wisdom is confirmed?

I was surprised to find that students in special schools apparently received more life skills training and more vocational education and community-based experiences than regular school students. It is also interesting to me that regular schools seem to place more emphasis on job placement than on job training. Both would seem to be critical for students with any type of disability. If I had had this information when my child was in school, I probably would have run a check to see if this was the case in her school and try to make changes if it were.

The issues about socialization in Chapter 6 surprised me and make me a trifle uneasy. I think it is an extremely important subject, and I agree with the statement that young people need to socialize to explore roles and learn social skills that will be useful in adult life. My uneasiness comes from the fact that the data came from parents, not from the students themselves. It is not clear to me that parents necessarily know much about their high school children's friendships, unless friends are brought into the home. My daughter says now that she made her life appear fuller at that time, even to the extent of telling me things she knew I wanted to hear about her social life at school. "After all," she says, "what could you have done about it? It was my problem." I wonder about the merit of including this as a question for students rather than parents in any future information- gathering for the NLTS.

In what ways am I disappointed in what has been learned so far? Now that I know these things, what is the next generation of questions I would want addressed in the transition field?

It is probably clear by now that I think the issue of career counseling and vocational education is very important and should continue to be a focus of NLTS work. I also believe there is another significant issue that needs to be addressed. The study reports responses from parents concerning the age at which youth started having trouble with disabilities. These responses hide much deeper issues. Parents know there is something wrong with their child soon after "it" occurs. "It" may be, for example, the fact that the child is born with a disability, or suffers a disabling illness, or becomes disabled from an accident. Almost always the parents are the first to recognize and acknowledge that something is wrong. At that time, they start making some important decisions about how to deal with the disability. The advice and help they are given them is critical to their developing philosophy of how they will handle their child's disability. I would posit that they are setting their child on a course that will have at least as much influence on how the child does in high school and how they make the transition out of school as the school environment does. Yet, traditionally, help is not provided to parents in a very timely manner. Even professionals who should be providing good counsel, tend to downplay the disability and seem to assume that the parent is over-reacting.

Future information collection might dig a little deeper into this issue to try to find out about the existence and effectiveness of very early support, and test the relationship of this to transition experience. If the effects of early support are positive, I would want to use this information to work with policymakers to make sure some support mechanisms are in place for parents once a disability has been identified, and that new support mechanisms are built as the child ages and they become needed.

In conclusion, I am impressed with the wealth of information that is available through the NLTS. It has given us the first comprehensive look at what is happening to young people with disabilities as they leave school and enter the adult world. Most of what I have written has been an effort to recommend ways to further enrich this information base. I am grateful for the opportunity to do so.

"THEN AND NOW, ME AND THEM - A COMMENTARY"

by Irving Kenneth Zola, Ph.D.*

I come to *Youth With Disabilities* wearing more than one hat. I make my living by professing sociology. From this position, I have been writing about health care in general and disability/chronic illness in particular for more than 30 years. In the 1960s, I added credentials in counseling, becoming part of the human growth and potential movement. Influenced by the civil rights and women's movements, I sensed the need to blend counseling and advocacy, and so in the early 1970s, I helped found an Independent Living/Disability Rights organization—The Boston Self Help Center. To both of these strands of my career, I brought (not always consciously) my minority group roots: my family's poverty, marginality, Jewishness, and—from shortly before my 16th birthday—my disability. It is through the latter lens that I have been asked to focus my remarks, so I need to supply some details.

In the pre-vaccine year of 1950, I contracted polio. I and my parents thought I was going to die as each moment I seemed to lose function and movement. At one point, I was paralyzed from the neck down. Over the succeeding months, there was gradual return of function, though the early assessment of my primary attending physician was quite accurate—"You will never walk again unaided." I wore a back support and used two crutches. Occasionally I wore a short brace on my right leg, but it continually broke. In 1954, I was involved in a serious automobile accident that shattered my right femur and confined me to a body cast and to bed for a year. By then, technology had improved so that braces were not the cast iron variety so strongly recommended in 1951. Thus, in 1955, I began wearing a long leg brace on my right leg and using canes for general ambulation. So, in my mid and late adolescence I faced both high school and postsecondary school with what was then considered to be a moderate to severe orthopedic impairment.

Now, 40 years later, I read about other youth with disabilities who are encountering our national education system. My first reaction to this report builds on this time gap. I cannot help but contrast "then and now." In terms of educational opportunities for students with disabilities, the glass feels markedly fuller now than in my time, in several respects.

First, the fact that such a study could be done says much about our progress in bringing students with disabilities into the mainstream. When I went to school, a study such as the NLTS would not have been possible. The number of children with disabilities who were "mainstreamed" was statistically insignificant. The alternatives, such as they were, were special schools or no schools. People with disabilities like myself who attended regular schools were not "mainstreamed;" we either hid our disabilities or we and our parents denied their existence. Our job was to make it without "making waves."

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The medical world first insisted that I wear full length cast-iron braces on both my legs. Coupled with the fact that we lived up four flights of stairs, this led them to begin making arrangements for my institutionalization in the State School for Crippled Children. For me and my family, this was the death knell for all our hopes and ambitions. Poor, Jewish, and now "crippled," my only way out of the ghettos of Dorchester was education. A State School diploma would never get me even considered for college, a Boston Latin School degree would at least give me a shot. We thus rejected their advice and began to create alternatives so that I might finish my senior year of high school and graduate with my Boston Latin School class. Now, students with disabilities routinely attend regular schools, with the broader educational opportunities they entail.

Another "then and now" comparison involves the very availability of support services and accommodations, now guaranteed by law, but largely unavailable when I was in school. For example, a problem I faced that is less pressing for current students was getting to school. Available public transportation was impossibly inaccessible. Borrowed money to purchase our first family car, and car pooling with friends solved this problem. Now, schools often provide needed transportation.

Once at school, other kinds of accommodations were important, then as now. But then, they consisted mainly of bending some rules. From Boston Latin School's perspective the bending was quite substantial: 1) I was allowed to use the private elevator to go from floor to floor; 2) I was not marked late for class though I always was (thus, these "bad marks," of which only a very few were allowed, did not appear on my record); 3) a fellow student was allowed to carry my books and materials from class to class; and 4) no one ever called on me as soon as I arrived in class. These things were done out of good will, not because I "deserved" them or had a right to them.

While this letting me "sink or swim" is consistent with the attitudes of some teachers reported today by the NLTS, the lack of rights had its costs. Being at high school and later college essentially at the perceived largesse of others has created both psychological scars and educational losses. While I am sure it did help "toughen me up," it also led me to exploit any loophole in the system. It was not without considerable insight that one of my graduate school mentors once dubbed me "corner-cutter Zola."

It is no surprise to me that the provision of support services and accommodations has led to major increases in educational opportunities for youth with disabilities and to the acquisition of more skills and achievement than in previous eras. It is also no surprise to me that there is not as much "successful" carryover in terms of their postsecondary educational and work experiences. It is naive to think there would be. There is an overstressing of education as a means to advancement in our society. It may be a door-opener, but little more. If the larger means to advancement in our society. It may be a door-opener, but little more. If the larger society is still sexist or racist, one will simply encounter the discrimination in a different time, place, or form. The same is true vis-a-vis disability but with the added issue of supportive services and accommodations. No where outside of our public school systems is there anywhere near the same kinds of services and accommodations provided for or guaranteed. Subsequent gatekeepers, such as admission and personnel officers, do not put forth significant efforts at outreach or future "maintenance" needs. Yet without them, many people with disabilities often cannot maintain their previous levels of accomplishments.

Although accommodation and support services would not have improved my academic record or changed my early work opportunities, they would have changed the quality of my educational experiences and the general quality of my life. Although I gained entree to my work sphere and rose up the academic ladder with few formal supportive services or accommodations, my continuing advancement and my job security depended on the support I learned how to ask for and get.

The current law and changing societal attitudes do make getting some of these accommodations easier. But the key is still probably my status, my power, my income, which allows me to take the long view and provides the resources for the long fight. I sincerely hope that future generations will not have to spend so much of their and their families' energies.

A final comparison of "then and now" focuses on the social, rather than the academic realm. As mentioned in the beginning of my remarks, no other students with disabilities shared my schooling experiences. While I and my family and my friends did everything to make me appear to be just like anyone else, in my heart of hearts I knew I stood out like a sore thumb and often felt isolated. My attempts to fit in never let me give it a name, but as I read about the current generation of students and reflect on my own adult experiences, I know I missed the opportunity to share my troubles and problems with anyone who was going through anything remotely similar. While this study correctly plays up the importance of having friends and colleagues, I wish there was a way to convey the necessary elements of experiencing both worlds.

Beyond these historical reflections, my reading of the NLTS findings gives me some cause for concern about where we go now. Although I see much progress since my student days, I am concerned about the study's implications for the kinds of programs and services we provide students to help their outcomes improve still further. For example, the NLTS has found that students who had taken more occupationally oriented courses did better than those in the straight academic ones. The authors realize that, if implemented as policy, this might inadvertently close off academic opportunities for many others. Thus, they make a plea for "individualization," which they argue "must continue to be the hallmark of programs for youth with disabilities if they are to accommodate the diversity of young people they are designed to serve."

The words sound good, but my experience tells me that the recommendation runs the risk of having more rhetorical than substantive impact. For 40 years ago, as well as now, there are recommendations, where they do exist, are too system-specific or too vague to overcome those barriers. For example, noting that 23% of female students with disabilities drop out because of parenthood and marriage, the authors recommend the need to attend to "the importance of women's roles as mothers and caregivers." I, for one, wonder if this attention includes questioning the traditional emphasis on such roles and debating the importance of sex education and birth control.

I also worry about the effects of continuing economic cuts to human services. Will school systems really try to individualize programs if such efforts lead to greater need for services, equipment, or one-on-one contact? In short, a school system is a necessary starting point for the marshalling of efforts to fight sexism, racism, ableism, classism. Only when individualization means a programmatic commitment to the maximizing of each students potential will it then be a meaningful orientation.

Finally, I must address what I tend to think of as a curious missing element in the NLTS. Concurrently with my reading of this report, I was a commentator for Howard Nixon's Mainstreaming and The American Dream: Sociological Perspectives on Parental Coping with Blind and Visually Impaired Children. What is especially important about this coincidence is that Nixon's monograph focused on the group of students with a disability generally thought to have the best track record vis-a-vis mainstreaming—those with visual impairments. What Nixon emphasized, and this current report by contrast does not, is the still-essential role of parents. The push for equality of opportunity in education for children with disabilities has been a protracted struggle. Its success is surely reflected in the NLTS findings. But what Nixon shows for the 1990s, confirmed by my own experience in the 1950s, is that while good will or civil rights might provide the opportunity, the real work is still done outside the school. Parents and family are the ones who push the system and support the children. To inadvertently ignore this paramount truth and resource may undercut all our formal services and accommodations.

I must confess to a final niggling concern. For as I read and reread this document I wondered where were the youth with disabilities like myself who were still making it by not making waves. To be in this sample, one had to be identified as a person with a disability and given some special education service or accommodation. Certainly in my adult life, I know many people with disabilities who would never be caught up in such a survey because they would fight identification as disabled and reject the need for accommodation. What these people would tell us might well alter our understanding of what it takes to "get through" and what policies it might take to reach them.

On the whole, then, I react to this report with a mixed bag of feelings - from familiarity to surprise, from niggling depression to guarded optimism. I will tolerate no comment that people with disabilities are no better off than in previous times. But we and our society have so much further to go.

COMMENTARY ON THE NATIONAL LONGITUDINAL TRANSITION STUDY OF SPECIAL EDUCATION STUDENTS YOUTH WITH DISABILITIES: HOW ARE THEY DOING?

by Jeffrey V. Osowski, Ph.D.[*]

A recent revision of the core mission statement of the Division of Special Education, New Jersey Department of Education included the primary goal of providing quality education opportunities which will enable all individuals with educational disabilities to make a successful transition into adult life and to become fully functioning members of their communities. This simple goal statement represents a significant shift in the mission of the division toward tangible student outcomes. In other words, our work and our resources are now focused on enabling pupils with disabilities to be successful in adult life. The perspective of my commentary will be that of a state director of special education charged with leading a division through policy, research, and programming activities to achieve this goal. My perspective on this report is also influenced by my former professional educational involvement as a teacher of pupils with disabilities, school psychologist, local district special education administrator, and school board member.

Outcomes

The most basic implication of this report of the National Longitudinal Transition Study of Special Education Students (NLTS) is that state policymakers and local educators must focus their attention and resources on pupil outcomes that either are clearly linked with a successful adult life or which define that successful adult life. The realm of special education for too long has been primarily process oriented. The NLTS identifies the following tangible student outcomes which can define a successful adult life for persons with disabilities:

- paid employment
- independent living
- financial independence
- participation in community groups and organizations
- post secondary training of education
- establishment of friends.

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The NLTS also makes clear the need to direct attention and resources toward a set of intervening school-related student outcomes that are clearly linked to and, in many instances, are prerequisites for a successful adult life for persons with disabilities, such as:

- school completion
- decreased dropout rate
- increased school attendance
- meeting proficiency requirements
- passing courses.

The study points out that these intervening school-related outcomes are integrally linked to later positive transition outcomes. For example, high school graduates with disabilities had almost a 17 percentage point greater probability of finding a paid job after high school, compared with students with disabilities who dropped out, when demographic and disability factors were controlled. Policies and programs that will lead to a higher rate of school completion will clearly result in improved transition outcomes.

In addition, professional educators must reassess their educational objectives for pupils with disabilities to include more than just the traditional school-related outcomes. We must recognize that we are responsible for the "products" of our work, e.g., successful paid employment, postsecondary education, independent living, etc. This refocusing will surely influence the way Individualized Education Plans (IEPs) are constructed, particularly the objectives, the location for the provision of our educational programs, the structure of those programs, and the way we work with other responsible educational, occupational, and social service agencies.

Occupationally Oriented Vocational Education

The NLTS clearly points out that when students participate in occupationally oriented vocational education programs, the probability that they will attend school, be productively engaged in school, complete school, and be engaged in paid employment after they leave school is increased significantly. A similar conclusion was drawn as part of the New Jersey Division of Special Education study of successful special education programs in the high school (Breakthrough, the Secondary Special Education Initiative, 1990), which determined that student involvement in experiences of the work world or that simulate those experiences improves motivation, attitude, learning, self-esteem, and employment after leaving high school. Participation in programs that integrally link work experiences with classroom education makes the school experience more relevant for pupils with disabilities and becomes one of the powerful reasons for keeping students with disabilities in school.

State education departments should act to legitimize occupationally oriented vocational education, through regulation and through other leadership activities by clearly including this option in the cascade of programs available for pupils with disabilities in secondary school. As these programs frequently have higher costs than traditional education programs, adequate state fiscal support must be provided. State education departments also should provide incentives through support grants to local education agencies to provide occupationally oriented vocational programs that have been proven to get results.

Regular Education With Supports

The NLTS reports that there are clear social benefits when pupils with disabilities attend regular education classes. They are more likely to be group participants, less likely to be socially isolated, and their sense of engagement in school is enhanced. The study also reported that attending regular education classes was an academic challenge for many students with disabilities because the demands of regular course work make it more difficult for them to achieve. The implication is that when pupils with disabilities spend more time in regular education classes, without failure, the achievement of positive postsecondary outcomes will be enhanced. A secondary and critically important implication is that supportive services must be provided to pupils with disabilities in regular classes if they are to achieve success in that setting.

A New Jersey Department of Education study of secondary special education programs found that intensive counseling, consisting of individual, group, and family components provided in the student's school day and after school, assisted students in managing home and school problems. Students became motivated to remain in school because of these valuable services and the school dropout rate decreased significantly. It was also determined that the setting of realistic academic and career goals, supported by both a comprehensive counseling program and directed, sequential scheduling based on student need, contributed to improved grades and learning. Employment after graduation from secondary school was significantly increased as a result. These findings were confirmed in the NLTS. When personal counseling is provided, there is a significantly lower probability that pupils with disabilities will drop out of school.

The NLTS also determined that when tutoring assistance is provided, pupils with disabilities experience greater success academically and their probability of dropping out of school is decreased significantly. Both of these intervening school-related outcomes are related to positive postsecondary outcomes. Through the secondary special education study mentioned previously and through a pilot project known as the Plan to Revise Special Education in New Jersey (Plan), we have determined that the provision of supportive educational services within regular education for pupils with disabilities, in the form of collaborative teaching between regular and special education teachers results in improved academic skills, grades, self-esteem, work habits, social skills, and ability to pass minimum competency tests. This "in-class" model of special education has paired a regular classroom teacher with a special education teacher so that appropriate supports could be provided to mainstreamed pupils with disabilities.

State departments of education should act to develop and implement policies that encourage the provision of regular education programs for pupils with disabilities with appropriate supports, such as those provided through the "in-class" model mentioned above. This model should be included through regulation in the cascade of programs and services provided for pupils with disabilities. Adequate state financial support should be provided for such programs and school districts should get the amount and type of training and field-based assistance that will enable them to provide successful, supportive regular education programs for pupils with disabilities.

Transition Planning and Programming—Starting Early

The Individuals with Disabilities Education Act (IDEA) requires that transition planning and programming commence at age 16 for pupils with disabilities. One of the implications of the NLTS is that early planning and preparation for adult life are required to assure positive transition outcomes. Age 16 is probably too late. It would be more advisable to begin transition planning and programming when pupils begin secondary school, perhaps age 14. The process itself should include the following:

- The pupil's IEP should include goals and objectives that involve preparation for postsecondary education or training programs, work settings, and/or independent living.
- A student's multi-disciplinary evaluation or reevaluation should include assessments to determine appropriate postsecondary outcomes.
- A case manager should be appointed to be responsible for transition planning.
- IEP's should designate the persons to serve as liaisons to postsecondary resources and to make referrals to resources as appropriate.
- Postsecondary resource professionals should be included in IEP planning meetings.

This process would assure that transition planning and programming start early, that the appropriate persons from responsible agencies are involved in the collaborative effort of transition planning and that IEP objectives are realigned to focus on appropriate postsecondary outcomes. For example, an outcome goal for a mentally retarded pupil may be competitive supportive employment. One of the skills necessary to function in the work setting is independence in travel. One of the IEP objectives for such a pupil might include the ability to get from home to the work site on public transportation. Such objectives are infrequently included in pupils' IEPs today, however, because educators focus more on the pupil's completion of more traditional or academic coursework than on skills necessary to function successfully in the community.

State education departments should act to implement regulations, identify effective practices and provide training to school districts regarding multi-disciplinary team assessment to identify appropriate postsecondary outcomes, the IEP planning process for transition, functional curriculum focused on appropriate post-secondary outcomes, and networking among responsible agencies.

Fairness and Accountability in Setting Standards

Another key finding of the NLTS is that highly structured and sometimes rigid state and school policies regarding grading, discipline, minimum competency testing and the high school diploma result in significant attendance and dropout problems for pupils with disabilities. State and local policies need to be established that are fair to pupil's with disabilities in that standards take into account the effects of their disabilities. On the other hand, we must be careful not to lower standards to the point where striving for excellence and achievement are not required or encouraged. For example, regarding minimum competency testing and standards for the high school diploma, pupils with disabilities should be held accountable for passing the minimum competency test before receiving a diploma if that is the standard for pupils without disabilities. On the other hand, the state should implement systems that allow for exemptions to the minimum competency test standards (and other graduation standards as appropriate) for pupils with disabilities if their IEP goals and objectives do not include the competencies measured by the test. When such exemptions are granted, there should be alternate IEP requirements that must be achieved to qualify for the diploma issued by the state and the school district. The State of New Jersey has implemented such a system over the past 5 years with significant success in terms of the numbers of pupils with disabilities who take the test and pass it. Such a policy, which sets high, but fair, standards for pupils with disabilities, also should be established regarding grading and discipline. Flexibility in such policies will, as noted in the NLTS, result in fewer dropouts and improve school attendance, which will in turn lead to more positive transition outcomes.

Serving Special Populations

The NLTS looked at a number of subpopulations of pupils with disabilities and found tconsiderable diversity. For example, pupils with visual impairments have low dropout rates, low course failure, good school completion rates, but high unemployment rates. On the other hand, pupils with emotional disturbances have high dropout rates, high arrest rates, and high academic failure rates, but did comparatively well in the employment arena. Severely disabled pupils generally were not engaged at all in positive postsecondary pursuits. Female pupils with disabilities had comparatively high graduation rates, but low levels of employment. Finally, pupils who were both disabled and economically disadvantaged had less access to the diversity of programs in the educational system. The NLTS concludes that "individualization must continue to be the hallmark of programs for youth with disabilities if they are to accommodate the diversity of young people they are designed to serve" (p. 11-3).

The implications are clear. State and local school districts must act to tailor programs to specific special populations and, in turn, tailor these programs to each individual pupil. Personal counseling services, for example, should be made available to pupils with emotional disturbances. Job coaching services to foster successful competitive or supportive employment should be made available to female pupils with disabilities, pupils with visual impairments, and pupils with severe disabilities. Finally, we must act to make traditional avenues for life skills training, occupationally oriented vocational education, and supported regular class instruction available to pupils with severe disabilities and to pupils who are economically disadvantaged and disabled.

Conclusion

To a large extent the NLTS confirms current conventional wisdom regarding successful practices in the education of pupils with disabilities at the secondary school level and in transition to adult life. It makes sense that pupils who are engaged in learning in the school environment will stay in school to graduation. It makes sense that pupils who stay in school to graduation will be more likely to be employed. It makes sense that pupils who are employed will be more successful in independent living situations. Considerable insight is also found in the specific findings of the NLTS that lie beneath these broad statements. For example, in pointing out the differences in the needs of subpopulations of pupils with disabilities, the NLTS provides clear direction for state policy makers and local program providers. Any such studies that provide specific direction are extremely useful and will surely have a positive impact on youth with disabilities.

Appendix A

NLTS SAMPLE DESIGN AND ANALYSIS PROCEDURES

NLTS SAMPLE DESIGN AND ANALYSIS PROCEDURES

This appendix provides somewhat greater detail on several methodological aspects of the NLTS, including:

- Sampling of districts, schools, and students.
- Weighting of NLTS data.
- Estimation and use of standard errors.
- Multivariate analysis techniques.
- Construction of comparison groups from the general population using the National Longitudinal Survey of Youth (U.S. Department of Labor).

The NLTS Sample

The NLTS sample was constructed in two stages. A sample of 450 school districts was selected randomly from the universe of approximately 14,000 school districts serving secondary (grade 7 or above) students in special education,* which had been stratified by region of the country, a measure of district wealth involving the proportion of students in poverty (Orshansky percentile), and student enrollment. Because not enough districts agreed to participate, a replacement sample of 178 additional districts was selected. More than 80 state-supported special schools serving secondary-age deaf, blind, and deaf-blind students also were invited to participate in the study. A total of 303 school districts and 22 special schools agreed to have their students selected for the study.

Analysis of the potential bias of the district sample indicated virtually no systematic bias that would have an impact on study results when participating districts were compared to nonparticipants on several characteristics of the students served, participation in Vocational Rehabilitation programs, the extent of school-based and community resources for the disabled, the configuration of other education agencies serving district students, and metropolitan status (see Javitz, 1990 for more information on the LEA sample). The one exception was a significant underrepresentation of districts serving grades kindergarten through eight. Many of these districts did not consider themselves as secondary school districts, even though they served grades seven and eight, which are considered secondary grade levels. In addition, bias may exist on factors for which data were not available for such comparisons.

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* The 1983 Quality Education Data, Inc. (QED) database was used to construct the sampling frame. QED is a private nonprofit firm located in Denver, Colorado. Special education cooperatives and other special service units were not sampled directly (83% of special education students are served directly by school districts; Moore et al., 1988). However, instructions to districts for compiling student rosters asked districts to include on their listing any students sent from their district to such cooperatives or special service units. Despite these instructions, some districts may have underreported students served outside the district.

Students were selected from rosters compiled by districts, which were instructed to include all students in special education in the 1985-86 school year who were in grades 7 through 12 or whose birthdays were in 1972 or before, whether or not they were served within the district or outside the district (e.g., in state-supported residential schools). Rosters were stratified into 3 age groups (13 to 15, 16 to 18, over 18) for each of the 11 federal special education disability categories and youth were randomly selected from each age/disability group so that approximately 800 to 1,000 students were selected in each disability category (with the exception of deaf-blind, for which fewer than 100 students were served in the districts and schools included in the sample).

In part because of the time lapse between sample selection and data collection, many students could not be located at the addresses or telephone numbers provided by the schools. Of the 12,833 students selected for the sample, about one-third could not be reached by telephone for the parent interview. (For more than half of these, addresses and telephone numbers were not provided by the schools/districts from which they were sampled.) This relatively high rate of inability to reach sample members confirmed the importance of including in the NLTS a substudy of nonrespondents to determine whether those who were reached for the telephone interview were a representative sample of the population to which the study was intended to generalize. To identify whether bias existed in the interview sample, interviewers went to 28 school districts with relatively high nonresponse rates to locate and interview in person those who could not be reached by telephone. Of the 554 sought for in-person interviews, 442 were found and interviewed, a response rate of 80%. A comparison of telephone interview respondents with in-person interview respondents showed that the telephone sample underrepresented lower-income households. The sample was reweighted to adjust for that bias, as described in the next section.

Of the 10,369 sampled students for whom addresses or telephone numbers were provided by schools or districts, some portion of the needed data was collected for 84%; the response rates for individual components of the study were as follows:

	N	Response Rate
Parent interview	7,619	71%
School records	6,241	60
School survey	6,672	64

Weighting Procedures and the Population to Which Data Generalize

Youth with disabilities for whom data could be gathered were weighted to represent the U.S. population of students in special education in the 1985-86 school year who were in grades 7 through 12 or at least 13 years old. Because it is a sample of students at various ages, the

NLTS sample does not generalize to youth who had dropped out of school before that age. For example, the sample of 18-year-olds generalizes to youth who were 18 and still in secondary school in 1985-86, not to all 18-year-olds with disabilities, many of whom may had left school at an earlier age.

In performing sample weighting, three mutually exclusive groups of sample members were distinguished:

(A) Youth whose parents responded to the telephone interview.

(B) Youth whose parents did not respond to the telephone interview but were interviewed in person.

(C) Youth whose parents did not respond to either the telephone or in-person interviews but for whom we obtained a record abstract.

A major concern in weighting was to determine whether there was a nonresponse bias and to calculate the weights in such a way as to minimize that bias. There was a potential for three types of nonresponse bias:[*]

(1) Bias attributable to the inability to locate respondents because they had moved or had nonworking telephone numbers.

(2) Bias attributable to refusal to complete an interview (only 3% of those available to be interviewed refused).

(3) Bias attributable to circumstances that made it infeasible to locate or process a student's school record.

Of these three types of nonresponse, the first was believed to be the most frequent and to have the greatest influence on the analysis. Type 1 bias also was the only type of nonresponse that could be estimated and corrected.

The magnitude of type 1 nonresponse bias was estimated by comparing responses to items available for the three groups of respondents (after adjusting for differences in the frequency with which youth in different disability categories were selected and differences in the size of the LEAs selected). Group A was wealthier, more highly educated, and less likely to be minority than group B. In addition, group A was more likely to have students who graduated from high school than groups B or C (which had similar dropout rates). Groups A and B were compared on several additional measures for which data were unavailable for group C. The youth described by the two groups were similar on these additional items, including gender, employment status, pay, functional skills, association with a social group, and length of time since leaving school. Adjusting sample weights to eliminate bias in the income distribution eliminated bias in parental educational attainment and ethnic composition, but did not affect differences in dropout rates. Groups B and C were large enough that if they were treated the same as group A in the weighting process, the resulting dropout distribution would be approximately correct.

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[*] We assumed that nonrespondents who could not be located because LEAs did not provide student names would have chosen to participate at about the same rate as parents in districts in which youth could be identified. The remaining nonrespondents would presumably have been distributed between the three types of nonresponse mentioned above.

Sample weighting involved the following steps:

- Data from the first groups of sample members were used to estimate the income distribution for each disability category that would have been obtained in the absence of type 1 nonresponse bias.
- Respondents from all three groups were combined and weighted up to the universe by disability category. Weights were computed within strata used to select the sample (i.e., LEA size and wealth, student disability category and age).
- Weights from three low-incidence disability categories (deaf, orthopedically impaired, and visually impaired) were adjusted to increase the effective sample size. These adjustments consisted primarily of slightly increasing the weights of students in larger LEAs and decreasing the weights of students in smaller LEAs. Responses before and after these weighting adjustments were nearly identical. In addition, the three deaf/blind youth from medium-size or smaller districts, who had large weights, were removed from the sample to increase the effective sample size. Thus, NLTS results do not represent the very small number of deaf/blind students in medium-size or smaller LEAs.
- The resulting weights were adjusted so that each disability category exhibited the appropriate income distribution estimated in step 1 above. These adjustments were modest (relative to the range of weights within disability category); the weights of the poorest respondents were multiplied by a factor of approximately 1.6 and the weights of the wealthiest respondents were multiplied by a factor of approximately .7.

Estimation of Standard Errors

The statistical tables present data for various subgroups of youth with disabilities. Most of the variables presented in the tables are reported as percentages of youth In some cases, the figures refer to means, such as the mean age of youth contacting VR. Percentages and means are weighted to represent the national population of youth with disabilities and youth in each disability category. However, the percentages and means are only estimates of the actual percentages and means that would be obtained if all youth with disabilities were included in the study. These estimates vary in how closely they approximate the true measures that would be derived from a study of all youth. To aid the reader in determining the precision of the estimates, the tables present the approximate standard errors and the unweighted numbers of cases on which each percentage or mean is based.

To determine the precision of a particular percentage or mean, the reader can construct a confidence interval for the estimate by multiplying the standard error by 1.96. The result is the range around the estimate within which the true measure would be found 95 out of 100 times.

For example, the NLTS estimates that 88.8% of youth with disabilities attended a comprehensive secondary school during their most recent year in school. The standard error of that estimate, .9, is multiplied by 1.96, letting us assume with 95% confidence that the true rate of attendance at comprehensive secondary schools falls within a range of ±1.8 percentage points, or 87% to 90.6%.

Readers also may want to compare percentages or means for different subgroups to determine, for example, whether the difference in employment rates for youth with learning disabilities and youth with mental retardation is statistically significant. To calculate whether the difference between percentages is statistically significant with 95% confidence (denoted as $p<.05$), the squared difference between the two percentages of interest is divided by the sum of the two squared standard errors. If this product is larger than 3.94, the difference is significant. Presented as a formula, a difference in percentages is statistically significant at the .05 level if:

$$\frac{(P_1 - P_2)^2}{(SE_1)^2 + (SE_2)^2} > 1.96^2$$

where P^1 and SE^1 are the first percentage and its standard error and P^2 and SE^2 are the second percentage and its standard error.

The standard errors for the NLTS were computed using procedures that differ from standard calculation routines. Such routines assume a simple random sample. However, the NLTS has a stratified cluster sample, which introduces design effects that reduce the precision of estimates for a sample of a given size, compared with a simple random sample. The design effects within the NLTS affect the precision of estimates to varying degrees for different subpopulations and different variables. Pseudo-replication is widely accepted as a variance estimation technique in the presence of design effects. However, it is not cost-effective for estimating the standard errors of the thousands of variables and subpopulations tabulated in the numerous NLTS reports and its statistical almanacs. Therefore, pseudo-replication was conducted on a limited number of variables to calibrate a cost-effective approximation formula, using the following procedures:

- A set of 25 variables representing the parent interview, school program survey, and record abstract was identified for the purpose of developing a statistical approximation formula; these included 16 nominal variables and 9 continuous variables.
- Standard errors of the weighted means of the selected variables were estimated in two ways. The first procedure involved pseudo- replication. For each variable, standard errors were calculated for students in each disability category and for the total sample (300 standard errors) using a partially balanced experimental design specifying how youth were to be allocated to 16 half-samples. The sample was split on the basis of the school districts and special schools from which youth originally were sampled. Districts and schools were paired on the basis of enrollment and a measure of poverty, and one member of each pair was assigned to each half-

sample. Sample weights were computed for each half-sample as if those in the half-sample were the only study participants.

The following formula was used to estimate the standard error of the mean for youth in all conditions:

$$\text{Standard error} = [(1/16) \sum_i (M_i - M)^2]^{1/2}$$

where M_i is the mean calculated for youth in one of the 16 half- samples), M is the mean response calculated from the full sample, and the summation extends over all 16 half-samples. (Note that responses to questions from the school program survey were attached to the records of students in the responding schools so that means for these items were computed using student weights.)

- The second estimation procedure involved an approximation formula based on an estimate of the effective sample size for each disability category and the total sample. The sampling efficiency (E) for a group was calculated using the following formula:

$$E = M_w{}^2/(M_w{}^2+S_w{}^2)$$

where M_w and S_w are the mean and standard deviation of the student weights over all members of the group. The approximation formula for the standard error of the weighted mean of nominal variables is:

$$\text{Standard error} = [P(1\text{-}P)/(E \times N)]^{1/2}$$

where P is the full-sample weighted proportion of "yes" responses to a particular question in the group, N is the unweighted number of "yes" or "no" responses to the question in the group, and E is the sampling efficiency of the group. The approximation formula for the standard error of the mean of a continuous variable is:

$$\text{Standard error} = [S_2/(N \times E)]^{1/2}$$

where S_2 is the variance of responses in the group for the continuous variable (computed with frequencies equal to full-sample weights) and N is the unweighted number of respondents to the question in the group. These formulas were used to compute a total of 300 standard errors for the same variables and groups addressed using pseudo-replication.

- To assess the accuracy of the standard errors produced by these formulas, we used scatter plots to compare them with standard errors produced using pseudo-replication. For both nominal and continuous variables, the approximate best fit was a 45 degree line. That is, on average, the formula based on estimates of effective sample size neither systematically overestimated nor underestimated the standard error obtained using pseudo-replication, arguing for use of the more cost-effective estimation formulas. However, because error remains in the estimates that might result in underestimating the true standard errors in some instances, we took a conservative approach and multiplied the standard errors produced using the estimation formulas by 1.25. The vast majority of the standard errors so obtained were larger than the standard errors obtained by pseudo-replication. Thus, standard errors were calculated using the effective sample size estimation formulas and increased by a factor of 1.25.

Multivariate Analysis Techniques

Most of the descriptive analyses presented in this volume are based on crosstabulations of two or three variables. However, interrelationships among variables limit our ability to disentangle the independent relationships among intercorrelated independent variables and an outcome of interest. Multivariate analysis techniques have been employed when our purpose was this identification of independent relationships. Multivariate analysis is an invaluable analytic technique in the social sciences precisely because of its ability to disentangle the separate impacts of multiple predictor variables. Suppose, for example, that we were interested in knowing the relationships that family SES and minority status have to students' school performance. Because family SES and minority status are themselves interrelated, we would need some way of distinguishing between the separate effects of each factor. Multivariate analysis techniques perform this function. Ordinary least squares regression analysis and logit analysis are the two techniques that have been used in this volume; each is discussed below.

Ordinary Least Squares Regression Analysis

Ordinary least squares regression analysis is used to consider the relationships of a variety of independent variables to a continuous dependent variation, such as the average number of days students were absent from school in their most recent school year (Chapter 4). Ordinary least squares regression analysis is based on the following form of model:

$$Y = a + b_1X^1 + b_2X^2 + e \qquad (1)$$

where:

Y is the outcome variable, which in this case we measure as the number of days a student was absent,

X^1 and X^2 are the independent variables. In this example, let us suppose that the first of these is the family's annual income and the second is coded 1 for those who are members of minority groups, and 0 for nonminorities,

a, b_1 and b_2 are coefficients to be estimated, and

e is the error term, reflecting the fact that an outcome generally will not be completely determined by the included independent variables (i.e., there is a stochastic component to the relationship).

The coefficients, b_1 and b_2, represent the separate effects of family income and minority status, independent of the influence of the other. Specifically, b_1 represents the effect of family income on absenteeism, holding constant the effect of minority status (i.e., it represents the effect of family income among students who either were all minority or all nonminority), and b_2 represents the effect of being minority rather than nonminority among youth whose families all had equivalent incomes. These coefficients can be readily interpreted as showing the amount by which the outcome is expected to change for each one-unit change in the independent variable. Thus, if family income were measured in thousands of dollars, a student's absenteeism would be expected to change by amount b_1 for each one thousand dollar increase in family income.

Of course, other techniques also could have been used to sort out these separate impacts. A three-way crosstabulation (categories of grade point average by categories of household income by minority status), for example, also would be very informative and for many purposes might be preferred (e.g., in descriptive or exploratory work when our knowledge of the nature of the relationship between independent and dependent variables is weak). But the use of crosstabulations often will confront us with dwindling cell sizes for all but the simplest problems, and regression analysis generally yields significance tests that are substantially more powerful, in a statistical sense (i.e., we are less likely to fail to reject the null hypothesis of no relationship when there really is a relationship).

The advantages of regression analysis can be fully realized, however, only if its underlying assumptions hold. Among these assumptions are that the equation correctly specifies the relationship between the independent and outcome variables and that the error term, e, has an expected value of zero and a constant variance. Although regression is robust in the face of violations of these assumptions, the case of dichotomous dependent variables gives rise to problems that are especially egregious for at least several reasons:

1. The assumption of linearity seems untenable. Regression techniques assume that the effect of each variable is constant throughout all of its own values and all values of the other variables. For example, in the equation above, it is assumed that the effect of family income, b_1, is the same for minority and nonminority youth, and, further, that absenteeism is affected equally regardless if the one-unit change in family income represents a difference of $10,000 and $11,000 or a difference of $50,000 and $51,000. Similarly, the difference between the expected days absent of minority and nonminority youth is estimated to equal b_2, regardless of whether we are evaluating the difference among youth who are high-income or low-income.

The assumption of linearity may hold at least approximately in many cases, and slight adjustments to a regression model (e.g., the inclusion of quadratic terms) can make necessary accommodations in many other instances. But, in the case of dependent variables that are dichotomous, the linearity assumption seems especially untenable. Let us modify out example above by assuming that the outcome is a dichotomous variable coded 1 for youth who dropped out of high school and 0 for those who persisted (an analysis performed in Chapter 5). Using regression analysis in this case, we would be modeling the probability that a youth will drop out. Because a probability must be bounded between 0 and 1, we would expect that, in cases where the expected probability of dropping out is already very high or very low (e.g., due to values on other independent variables in the equation), even very large changes in the value of an independent variable can generate only very modest changes in the expected probability of dropping out. In other words, the effect of further changes in any independent variable, we would expect, will have asymptotically diminishing effects as the value of the expected probability of dropping out approaches 0 or 1. This implies a violation of the linearity assumption, however, because regression analysis makes no such provision.

2. Expected values of the outcome that are out-of-range. Because regression analysis makes no such provision, one could conceivably end up with predicted values on the outcome variable that exceed 1 or that are less than 0, a nonsensical result.

3. The assumption of constant variance does not hold. The assumption that the error term in the above equation has a constant variance is necessarily violated in the case of dichotomous dependent variables. Violation of this assumption is known as heteroscedasticity.

Logit Analysis: An Alternative to Regression

Fortunately, other techniques have been devised specifically for the multivariate analysis of dichotomous dependent variables. One used extensively in this volume is logit analysis. Logit analysis has been used in analyses of whether youth received failing course grades and whether they were retained at grade level (Chapter 4); whether youth dropped out of school, rather than persisting (Chapter 5); whether youth were socially isolated from friends, saw friends frequently, belonged to school groups, or ever were arrested (Chapter 6); whether out-of-school youth had achieved residential independence (Chapter 7); whether out-of-school youth had achieved competitive employment (Chapter 8); whether out-of-school youth had enrolled in a variety of kinds of postsecondary schools (Chapter 9); and whether out-of-school youth had become engaged in productive work- or school-related activities outside the home (Chapter 10).

Logit analysis deals with the complications of nonlinearity inherent in regression analysis by transforming the outcome variable. Regression analysis models the *probability* of dropping out as a function of the independent variables, and this is what causes the problems described above. Logit analysis circumvents these problems by modeling the *log odds* of dropping out. The log odds, often denoted Z, is defined as:

$$Z = \ln [P/(1-P)] \qquad (2)$$

where P is the probability of the outcome occurring (for example, the probability that a youth will drop out). As P approaches 1, Z approaches plus infinity; and as P approaches 0, Z approaches negative infinity. In logit analysis, Z is then modelled as a linear function of the Xs, the independent variables. Thus,

$$Z = a + b_1X^1 + b_2X^2 + e \qquad (3)$$

Using maximum likelihood methods, the estimators for the coefficients in the above equation have desirable properties. But, whereas coefficients estimated from regression analysis are easily interpretable, as already described, coefficients from logit analysis lack straightforward interpretation for at least two reasons.

1. The dependent variable is a log odds. The coefficients, b_1 and b_2, represent the expected change in the log odds of the outcome for a one-unit change in the independent variables. Few people have an intuitive sense for what a change in the log odds by amount b_1 means.

2. Effects on probabilities are nonlinear. We can greatly ease interpretability by converting changes in log odds into changes in estimated probabilities. But, because Z is a nonlinear transformation of the probability of an outcome, the independent variables also are nonlinearly related to P. This means that there really is no single answer to the question of how changes in the value of an independent variable affect the probability of dropping out. In other words, the effect of a one unit change in an independent variable (X^1) on the probability of dropping out depends on the initial value of the independent variable and on the values of all other independent variables in the equation.

Converting logit coefficients to changes in estimated probabilities is necessarily somewhat arbitrary, therefore. One common approach, and the one followed throughout this volume, is to compute the expected values of Z when an independent variable is specified at two (or more) conceptually interesting values, while using mean values on all remaining independent variables, to next convert these Z values to probabilities, and then to take the difference. For dichotomous independent variables, these two alternative values would obviously be zero and one (i.e., the persons has the attribute in question or does not); for continuous independent variables, one value above the mean and one below the mean might be used.

For example, using equation (3) above, we would first estimate the equation to derive coefficients a, b_1 and b_2. The impact of family income, thus, represents the amount by which the log odds of dropping out is expected to change for a one-unit change in family income; similarly, b_2 represents the amount by which the log odds of dropping out is expected to change for youth who are minorities rather than nonminorities. To convert the effect of minority status to an impact on predicted probabilities, we might substitute mean family income for X^1, use, alternately, 0 and 1 as the values of minority status, and compute the expected value of Z for each case by multiplying through the equation. Each of these Z values could then be converted to a predicted probability of dropping out (by solving for P in equation 2, above), and they would then represent, respectively, the predicted probability of dropping out for minority and nonminority youth whose families where of average SES. The effect of minority status on dropping out at the mean value of family income is given by the difference in these predicted probabilities.

We could evaluate the effect of family income very similarly, by substituting the mean value of minority status for X^2 (approximately .20 in our sample) and choosing alternate values of family income in turn—say, 12 and 18 (assuming income is measured in thousands of dollars). We would then solve the equation for the two values of Z and convert these two into estimated probabilities. The difference between the two probabilities would then represent the change in the probability of dropping out of changing family income from $12,000 to $18,000, at the mean value of minority status. In each of the logit analyses presented in this volume, we present both the coefficients, the estimated change in the probabilities, calculated as noted above, and the increment of the independent variable for which the change was calculated.

Creating Comparison Groups from the General Population of Youth

We have created two comparison groups from the general population of youth to use as benchmarks against which to interpret outcomes of youth with disabilities. The first group is a sample of youth from the general population, based on data from the National Longitudinal Survey of Youth (NLSY, U.S. Department of Labor). This group permits us to identify differences between youth with disabilities and the general population. However, we cannot attribute those differences to the presence of a disability because Chapter 2 has illustrated that youth with disabilities differed from youth in the general population on demographic characteristics that would be expected to influence their outcomes (e.g., gender, ethnicity). Hence, a second comparison group was constructed from the NLSY that has the same distribution as youth with disabilities on important demographic variables. The construction of these two groups is described below.

The NLSY contains data for more than 12,000 noninstitutionalized youth who were between the ages of 13 and 21 in 1979. These youth have been interviewed annually from 1979 to the present concerning a wide variety of topics, including their family background, schooling, employment, marital status, and living arrangements. For the present study, data from the 1979-1983 interviews were used; after those years, youth in the NLSY were generally older than youth in the NLTS.

Because the universe of the NLTS is youth who were in special education programs in 1985-86, while the universe for the NLSY is all youth (regardless of present or past school status), the following steps were taken to achieve comparability. First, only NLSY youth who were currently in school or had been in school during the current or previous academic year were included in the analysis. Second, comparisons were restricted to youth between 15 and 20 years of age. This was done primarily because very few NLSY youth over age 20 met the requirement of having been in secondary school the academic year before the interview. Little is lost by this restriction because the NLTS sample contains very few individuals below the age of 15 and relatively few over age 20.

Thus, we used all the in-school observations and any observations when a person was out of school, but had been in school during the academic year before the interview. There were up to 5 in-school interviews for a given youth. For most people, only one out-of-school observation was included. Two out-of-school interviews could occur if a youth left school during an academic year but before the spring interview. In that case, the interviews of the spring of that academic year and the next spring were included.

NLSY provides sampling weights based on respondents' probability of selection. However, our use of multiple observations per respondent for many analyses resulted in older youth being overrepresented. We corrected this bias by multiplying each individual's weight by:

$$\frac{\text{Weighted N of individuals of the youth's age in 1980}}{\text{Weighted N of the youth's age for all observations in the sample.}}$$

For analyses that used multiple observations, this weight was used. For analyses that used one observation only (for instance, data on arrests came only from the 1980 interview), the original weight supplied by the NLSY was used.

As indicated above, youth with disabilities differ in several demographic characteristics from the general population of youth. The comparison group we constructed to "hold constant" these differences was formed by weighting the NLSY data to match the distribution of selected demographic characteristics of youth with disabilities. Using these weights, the comparison population has the same distributions of gender, ethnicity, and head of household's education as the population of youth with disabilities.

Despite our adjustments, some important noncomparabilities remain. They are as follows:

- Respondent. NLTS interviewed parents, while NLSY interviewed youth. Although there is some evidence that parents in the general population tend to underreport the employment activities of their teenage children (Freeman and Medoff, 1982), the extent to which parents and youth differ in reporting other phenomena is not known.
- Month of interview. The modal month of interview was August for the NLTS and March for the NLSY. The two outcomes most affected by differences in timing of interview are school completion status and employment status. Fortunately, NLSY data included youths' employment status as of August 15, and we were able to construct a variable on school completion status as of the summer after the interview. However, most data on occupational distributions, part-time/full-time status, and wages come from the summer for NLTS youth and the spring for NLSY youth.
- Year of interview. NLTS interviews took place in 1987, while NLSY data come from 1979-1982. Readers should be sensitive to the fact that period effects may have influenced some variables. We adjusted for period effects for only one variable, wages, by operationalizing wages as the percent of the population earning the minimum wage or less.
- Time out of school. The most important consequence of differences in the month of interview affect analyses of data for youth who were no longer in secondary school. More than three-fourths (76%) of NLSY secondary school graduates in the sample (weighted) had been out of school between 9 and 11 months when they were interviewed. In contrast, about 56% of NLTS graduates had been out of school about 2 months, and about 44% had been out of school about 14 months.

- Unmeasured or uncontrolled demographic differences. The groups may continue to differ in unmeasured ways or in ways that were not adjusted for in the reweighting. For example, we were not able to weight the comparison population by urbanicity, despite knowing that NLTS and NLSY samples differ significantly on this factor, because of noncomparability of the measures of urbanicity in the two data sets.
- Exact wording of questions and response categories. Wording of questions and response categories differed between the NLTS and the NLSY. Considerable research has shown responses to items can be affected by these types of differences (e.g., Schwarz and Hippler, 1990).

This latter point underscores the importance of readers being aware of the construction of variables used in the comparisons between the NLTS and the NLSY. Appendix C contains the specifications of variables constructed using NLTS data. NLSY items used here include:

- Ethnicity. If the youth indicated more than one ethnicity, the ethnicity the youth reported he identified most closely with was used. Questions: "*What is your origin or descent?*" and "*You said that your origin or descent was [respondent's answers to prior questions]. Which one do you feel closest to?*"
- Head of household's education. Taken from 1979 interview questions: "*What is the highest grade or year of regular school that your father ever completed?*" and "*What is the highest grade or year of regular school that your mother ever completed?*" Responses for father's education were used unless father's education was missing or the father did not reside in the youth's household, but the mother did.
- Secondary school enrollment status. From NLSY's constructed variable, enrollment status as of May 1 survey year, which is based primarily on the questions, "*Are you currently attending or enrolled in a regular school, that is, in an elementary school, a middle school, a high school, a college, or a graduate school?*" and "*What grade or year of school is that?*"
- Secondary school completion status. Based on youth's answers to:

  "Are you currently attending or enrolled in a regular school, that is, in an elementary school, a middle school, a high school, a college, or a graduate school?"

  "What is the highest grade of school that you have ever attended?"

  "Do you have a high school diploma or have you ever passed a high school equivalency or GED test?"

  "Which do you have, a high school diploma or a GED?"

  The value "dropped out" was assigned if the youth indicated that he/she was not currently enrolled in school, and had completed fewer than 12 years of school or did not have a high school diploma. The value "graduated" was assigned if the youth indicated he or she had a high school diploma or was enrolled in college as of May 1 of the survey.
- Grade in school. Respondent's answer to, "*What grade of school is that?*"
- Youth got GED. From youth's answer to:

  "Do you have a high school diploma or have you ever passed a high school equivalency or GED test?" and

  "Which do you have, a high school diploma or a GED?"

- Youth attended college. Constructed from the variable "*What is the highest grade of regular school you have ever attended?*"
- Youth attended postsecondary vocational school. Youth indicated that he/she had had training for one month or more at a business college, nursing program, vocational-technical institute, barber or beauty college, or flight school.
- Employment status. From NLSY's Employment Status Recode, a widely used variable derived from answers to several standard CPS questions whose categories are working, with job but not at work, unemployed, keeping house, going to school, unable to work, other, in active forces. Although the algorithm for constructing the variable is quite complex, the main questions from which the variable is derived are:

  "What were you doing most of last week—working, going to school, or something else?"

  "Did you do any work at all last week, not counting work around the house?"

  "Did you have a job or business from which your were temporarily absent or on layoff last week?"
- Occupation. Youth's answer to, "*What kind of work were you doing for this job?*"
- Part time/full time status. *"Do you usually work 35 hours or more a week at this job?"*
- Youth earned more than minimum wage. An hourly wage was created from youth's report of wages, time unit for wages, and, if necessary, hours per week. (For example, if a youth reported wages of $100 per week and had reported working 40 hours per week, hourly wages would be $2.50.) This variable then compares the youth's hourly wage to the minimum wage in effect as of the survey year (with a 15 cent tolerance for measurement error).
- Marital status of respondent. From youth's response to, *"Are you presently married, widowed, divorced, separated, or have you never been married?"* and a question regarding whether the youth was living with person of the opposite sex as a partner.
- Whether youth has ever been arrested. (From 1980 NLSY data only). Youth's answer to, "*Not counting minor traffic offenses, have you ever been booked or charged for breaking a law, either by the police or by someone connected with the courts?*"
- Independent living. From NLSY's household record type of residence R is living in. Indicates whether respondent was living with parents; in dorm, fraternity, sorority; hospital; jail; own dwelling unit; orphanage; religious institution; or other institutional quarters. Youth was considered to be living independently if he/she lived in his/her own dwelling unit or in a dorm/fraternity/sorority.

Appendix B

OTHER PRODUCTS AVAILABLE FROM THE NLTS

Appendix B

OTHER PRODUCTS AVAILABLE FROM THE NLTS

The National Longitudinal Transition Study of Special Education Students Statistical Almanacs:

- Volume 1: Overview
- Volume 2: Youth Categorized as Learning Disabled
- Volume 3: Youth Categorized as Emotionally Disturbed
- Volume 4: Youth Categorized as Speech Impaired
- Volume 5: Youth Categorized as Mentally Retarded
- Volume 6: Youth Categorized as Visually Impaired
- Volume 7: Youth Categorized as Hearing Impaired
- Volume 8: Youth Categorized as Orthopedically Impaired
- Volume 9: Youth Categorized as Other Health Impaired
- Volume 10: Youth Categorized as Multiply Handicapped

The National Longitudinal Transition Study of Special Education Students : Report on Sample Design and Limitations, Wave 1 (1987)

The National Longitudinal Transition Study of Special Education Students : Data Tape and Documentation

Parents' Reports of Students' Involvement with Vocational Rehabilitation Agencies in the First Years After Secondary School: A Report from the National Longitudinal Study of Special Education Students

The Transition Experiences of Youth with Disabilities: A Report from the National Longitudinal Study of Special Education Students

Dropouts with Disabilities: What Do We Know? What Can We Do?

Youth With Disabilities: How Are They Doing? The First Comprehensive Report from the National Longitudinal Transition Study of Special Education Students

The National Longitudinal Transition Study of Special Education Students: Report on Procedures for the First Wave of Data Collection (1987)

The Early Work Experiences of Youth with Disabilities: Trends in Employment Rates and Job Characteristics

Appendix C

VARIABLE SPECIFICATIONS

VARIABLE SPECIFICATIONS

This appendix describes the construction of variables used in the analyses presented in this volume. The discussion is organized according to the elements of the conceptual framework of the transition process presented in Chapter 1. Categories of variables include:

- Individual, household, and community characteristics.
- School context.
- Students' school programs.
- Secondary school outcomes.
- Postsecondary outcomes.

Each variable is defined and its data source(s) specified. Issues related to reliability or interpretation for relevant variables are discussed.

Individual Characteristics

Disability Category

Information about the nature of youths' disabilities comes from up to three sources for an individual youth. The original designation of youths' disabilities that was the basis of their being sampled for the NLTS came from rosters of all secondary students in special education submitted by districts included in the study. The primary disability category of each student was designated by the district on the roster. In addition, parents were asked, "*For what learning problems or other disabilities has (NAME) gotten special services? Which of these has been (NAME'S) main learning problem or disability?*" Finally, data collectors who abstracted information from students' school records were asked to record all disabilities for each student that were designated in the school record or IEP, in response to the following questions: "*What are this student's disabilities? What is his/her **primary** disability?*"

For all crosstabulations throughout this report, youth are assigned to a disability category based on the primary disability designated by the youth's school or district in the 1985-86 school year. Federal definitions of special education categories are presented in Chapter 2. Because we have relied on category assignments made by schools and districts, NLTS data should not be interpreted as describing youth who truly had a particular disability, but rather as describing youth who were categorized as having that disability by their school or district. Hence, descriptive data are nationally generalizable to youth who were classified as having a particular disability in the 1985-86 school year.

In multivariate analyses, somewhat different groupings were used because our purpose was different. Rather than describing youth in a particular category, the purpose of using variables designating disabilities in multivariate analyses was to identify the portion of variation in the independent variable explained by having a particular kind of disability. For this purpose, it was important to eliminate some of the measurement variability within the categories., For example, some youth with IQ scores that exceeded their state's limit for designation as mentally retarded still were classified as mentally retarded, whereas other youth with the same IQ from a different district in the same state were classified as learning disabled. This kind of variability reduces the power of the variables to distinguish significant differences in outcomes. Hence, we sought to establish somewhat more homogeneous groupings of youth, in essence imposing a more standard definition of a disability on the variability that exists naturally. In the example just given, youth who exceeded the IQ limit for designation as mentally retarded were recoded for multivariate analyses as learning disabled.

We also sought to resolve differences between the three sources of data. For example, some reports of disabilities from school records in 1986-87 differed from the disability classifications reported for some students by their districts in 1985-86, indicating a change in their classification. Because we were interested in determining the effects of disability on outcomes measured in 1986-87, some youth were recoded on the basis of the more recent information.

In other cases, multiple sources of data added to our understanding of the disabilities of some youth. For example, IQ data revealed that some youth had mental retardation in addition to their primary disability. Extensive analysis of functional abilities of youth indicated that youth with mental retardation (in addition to a primary disability) generally exhibited functional abilities and outcomes that were more similar to youth designated primarily as mentally retarded than they were to youth who had the same primary disability, but did not also have mental retardation. In a limited number of such cases, youth were recoded into the mentally retarded category for multivariate analysis purposes. In some cases in which school districts used a single category of "hearing impaired" rather than two categories distinguishing deaf and hard of hearing, additional data helped us to recode youth who were deaf into that category.

Overall, 14% of youth were recoded for multivariate analysis purposes only, with the following distribution:

Original District Categorization	Number Recoded	Percentage Recoded
Learning disabled	135	11.3
Emotionally disturbed	114	14.6
Speech impaired	143	24.3
Mentally retarded	177	14.7
Visually impaired	74	8.5
Hard of hearing	161	20.9
Deaf	35	3.8
Orthopedically impaired	196	25.6
Other health impaired	93	19.6
Multiply handicapped	38	5.1
Deaf/blind	2	2.0
All conditions	1,168	13.9

Table C-1 presents the relationship between the original district categorization of youth and their NLTS recoding for multivariate analysis purposes.

The highest concentration of recoding was among youth who originally had been designated as orthopedically impaired (26%), the majority of whom were recoded for multivariate analysis purposes as other health impaired. Similarly, most of the recoded youth from the other health impaired category were recoded orthopedically impaired. Extensive analysis revealed considerable ambiguity in the use of these classifications across districts. For example, 23 parents of youth classified as orthopedically impaired reported that they were health impaired (impairment not specified), 8 designated epilepsy as the disabling condition, 4 reported asthma, 2 reported heart disease, and 3 reported cancer, all conditions that normally would qualify a youth as health impaired, not orthopedically impaired. Similarly, in the other health impaired category, 34 parents described their children as orthopedically impaired, 10 said the disabling condition was cerebral palsy, and 1 reported muscular dystrophy, conditions generally classified as orthopedic impairments. Hence, the shuffling between these two categories.

Almost 1 in 4 youth (24%) who originally had been designated as speech impaired were recoded for multivariate analysis purposes. A notable number of youth (76, 13%) were recoded into the learning disabled category, whereas 42 were recoded into the mentally retarded category (7%). The large majority of these cases were recoded based on new data reported by schools that indicated youth had been reclassified, often at the point of changing from junior high or middle school to high school.

Table C-1

RECATEGORIZATION OF YOUTH BY DISABILITY CATEGORY FOR MULTIVARIATE ANALYSIS PURPOSES

Original Primary Disability Category	Reclassified Primary Disability Category: Total	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired	Other Health Impaired	Multiply Handicapped
Learning disabled	1,056	38	4	84	2	0	1	2	3	1	0
Emotionally disturbed	81	665	3	25	1	1	0	0	2	1	0
Speech impaired	76	14	445	42	0	7	2	2	0	0	0
Mentally retarded	127	23	0	1,027	1	2	0	6	10	8	0
Visually impaired	10	4	1	33	801	2	0	10	4	1	9
Hard of hearing	25	6	1	10	0	609	105	2	9	0	3
Deaf	3	6	0	11	1	2	883	3	5	1	3
Orthopedically impaired	15	8	1	31	2	1	1	568	133	4	0
Other health impaired	33	9	2	13	3	4	0	29	382	4	0
Multiply handicapped	3	7	1	9	5	2	2	1	2	706	6
Deaf/blind	0	0	0	0	1	0	1	0	0	0	98
Total	1,429	780	458	1,285	817	630	995	623	550	722	119

Source: Original classification from district/school rosters in 1985-86; reclassification based on rosters and on students' school records from 1986-87 and parent interviews in 1987.

The large majority of the 21% of recoded youth who originally were designated as hard of hearing came from districts that specified a single hearing impaired category but who were reported by their parents or schools to be deaf. Youth recoded from the mentally retarded category primarily were designated as severely/profoundly mentally retarded and were regrouped with other severely impaired youth (see below).

The 11 categories that remained after this recoding still were cumbersome for multivariate analysis purposes. We sought to reduce the number of disability category variables to establish greater parsimony. In particular, the category of deaf/blind was too small to be useful statistically. Youth in that category also functioned very similarly to youth in the multiply handicapped category, to those with severe/profound mental retardation, and to youth within the other health impaired category who were designated as autistic. Both to reduce the number of categories and to reduce the extreme range within such categories as mentally retarded, we created a category of "severely impaired," which includes youth with multiple handicaps, severe/profound mental retardation, autism, and who were deaf/blind.

Functional Mental Skills

Parents were asked: *"How well does (NAME) do each of the following things on his/her own, without help? Look up telephone numbers in the phone book and use the phone; tell time on a clock with hands; read and understand common signs like STOP, MEN, WOMEN, OR DANGER; count change. For each task: Would you say very well, pretty well, not very well, or not at all well?"*

For some analyses, percentages of youth performing each task at each skill level are reported. For others, a scale was formed by assigning a value of 4 to "very well," 3 to "pretty well," 2 to "not very well" and 1 to "not at all well." Scores were summed for the 4 tasks to create a scale ranging from 4 to 16. Simple correlations between items and the scale were significant at the <.0001 level:

	Use Phone	Tell Time	Read Signs	Count Change	Functional Scale
Use the phone (N=6,708)	1.00	.61	.51	.59	.84
Tell time (N=6,745)		1.00	.57	.69	.86
Read signs (N-6,743)			1.00	.53	.76
Count change (N=6,749)				1.00	.85

Youth who were missing one or more of the items that make up the scale were omitted from crosstabulations using the scale. For multivariate analyses, in which maintaining a maximum sample size was a major concern, youth who were missing a single item in the scale were imputed a value on that item by predicting a value for the single missing item using values for the three components of the scale parents did report, the disability category of the youth, and age.

Self-Care Skills

Parents were asked, "*How well does (NAME) do each of the following things on his/her own, without help: dress him/herself completely, feed him/herself completely, get places outside the home, like to school, to a nearby store or park, or to a neighbor's house. Would you say he/she does it very well, pretty well, not very well, or not at all well?*"

For some analyses, percentages of youth performing each task at each skill level are reported. For others, a scale was formed by assigning a value of 4 to "very well," 3 to "pretty well," 2 to "not very well" and 1 to "not at all well." Scores were summed for the 3 tasks to create a scale ranging from 3 to 12. Simple correlations between the items and the scale were significant at the <.0001 level.

	Dress Oneself	Feed Oneself	Get Around	Self-Care Scale
Dress oneself (N=6,773)	1.00	.70	.58	.88
Feed oneself (N=6,774)		1.00	.46	.80
Get around (N=6,747)			1.00	.86

Youth who were missing one or more of the items that make up the scale were omitted from crosstabulations using the scale. For multivariate analyses, in which maintaining a maximum sample size was a major concern, youth who were missing a single item in the scale were imputed a value on that item by predicting a value for the single missing item using the two present components of the scale, the disability category of the youth, and age.

This question was asked only of parents of youth who were classified by their school districts as mentally retarded, visually impaired, deaf, orthopedically impaired, other health impaired, multiply handicapped, or deaf/blind. They were not asked of parents of youth who were classified as learning disabled, emotionally disturbed, speech impaired, or hard of hearing, with no other disabilities because such disabilities were assumed not to interfere in most cases with the performance of the basic self-care skills being investigated. Youth in these categories were assigned a value corresponding to "very well" for each item, which would sum to a score of

12 (high) on the corresponding scale. If the skills of youth in these categories actually were lower, the reported self-care skills scores overestimates abilities.

Measured IQ

IQ scores were taken from students' school records for their most recent year in secondary school and recorded on the school record abstract form in response to the following question: *"What overall test score or IQ score did the student receive (on the test indicated in the preceding question)? If the IQ or overall test score is not given, indicate the mental age or grade equivalent score if provided."*

IQ data were not available for all youth and the fraction of students for whom IQ scores were available varied considerably for youth in different disability categories, as shown below:

	IQ Scores Available		
Primary Disability Category	%	S.E.	N
Learning disabled	83.4	1.8	894
Emotionally disturbed	75.2	2.6	557
Speech impaired	51.2	3.5	420
Mentally retarded	86.2	1.5	935
Visually impaired	74.1	3.2	648
Hard of hearing	65.1	3.6	563
Deaf	64.7	2.9	714
Orthopedically impaired	64.0	3.3	558
Other health impaired	47.8	4.3	306
Multiply handicapped	70.5	3.6	558
Deaf/blind	36.4	7.6	72

The relatively high rate of missing data for youth in some categories raised the question of whether available IQ data were systematically biased downward. Were scores available more frequently for youth for whom average IQ was questioned, i.e., those at the lower end of the average intelligence scale? Perhaps IQ tests were not as routinely given for youth for whom there was little question of at least average IQ.

To address this issue, the functional mental skills scores were compared for youth with and without IQ data in each disability category. To the extent that functional ability correlates with measured intelligence ($r=.54$; $p<.001$), if the hypothesized bias were present, youth with IQ data would have lower functional ability scores than youth without IQ data. Examination of the functional mental skills scale scores for youth classified as emotionally disturbed, hard of hearing, learning disabled, and visually impaired revealed no significant differences between youth with and without IQ test scores, indicating an absence of bias for those categories. However, youth classified as orthopedically impaired, other health impaired, and speech impaired with IQ data had significantly lower functional mental skills scale scores than those for whom IQ data were not available (p<.05). Thus, there appears to be some downward bias in the IQ scores for youth in these categories. For youth in the deaf/blind, multiply handicapped, and mentally retarded categories, functional mental skills scores were significantly higher for those with IQ scores (p<.001), suggesting an upward bias in IQ scores for them.

One possible explanation for the systematic differences is that some districts may have tested only those youth with orthopedic, speech, or other health impairments who were having explicit educational performance difficulties or for whom mental retardation was suspected. At the same time, it is likely that lower functioning youth classified as deaf/blind, multiply handicapped, or mentally retarded were not able to be tested accurately, while testing of higher functioning youth in these categories was important to ascertain their academic potential.

Differences in abilities only partially explain why scores were available only for some youth. In all disability categories, scores were available for some youth at all functional levels. The most likely explanation for this seemingly random component of the availability of IQ scores is variation in school and district practices in the extent to which IQ testing is conducted as part of special education assessment procedures.

When IQ score is used in crosstabulations, only data reported by schools are used. In multivariate analyses, data were imputed for some missing cases by predicting a value for IQ based on a regression equation predicting IQ as a function of the primary disability category, whether the youth was mildly, moderately, or severely mentally retarded as a secondary disability, the functional mental skills scale score (correlated with IQ at .59; p<.0001), ethnic background, and household income.

Individual, Household, and Community Characteristics

Table C-2 indicates the core set of variables measuring individual, household, and community characteristics that is used throughout this volume. Their data source(s) and coding are presented.

School Context (Box B)

Attended Special School for Students with Disabilities

Two sources of data were used to determine whether a student attended a special school serving only students with disabilities: the Survey of Secondary Special Education Programs and students' school records. The survey item asked, "*Which of the following best describes your school?*" Response categories included, among others, "*School that only serves handicapped or disabled students.*" The school record item asked, "*What are all of the settings in which this student received educational services in the school year indicated on the cover sheet?*" Response categories included, among others, "*special school for the disabled.*"

Table C-2

INDIVIDUAL, HOUSEHOLD, AND COMMUNITY VARIABLES USED FREQUENTLY IN NLTS ANALYSES

Variable	Source	Values	Definition/Construction
Gender	Parent interview	1	Male
		0	Female
			For youth without a parent interview, gender was inferred from the youth's name. In cases in which gender was not reasonably clear from the name, no gender was coded.
Ethnicity	Parent interview or school records	1	Black
		2	White
		3	Hispanic
		4	American Indian/Alaskan Native
		5	Asian, Pacific Islander
			In crosstabulations, the latter 2 categories were combined into a single "other" category. Multivariate analyses required fewer categories. We created a dichotomous variable coded 1 for minority (categories 1, 3, 4) and 0 for nonminority (categories 2, 5). The latter two categories were combined as nonminority because including Asian with other minorities reduced significantly the power of the variable to detect differences in analyses of student outcomes, in which Asian youth often excel relative to other minorities.
Youth's age	Parent interview or school records	15-24	In analyses of youth outcomes or activities in 1987, age in 1987 is used. Analyses of experiences in the most recent school year (e.g., grades received), use age in that school year. For youth who had been in school in the preceeding year, the two age figures were the same. For those out of school 1 to 2 years, the age in the most recent school year was calculated as age in 1987 minus 1 year.
Head of household's highest education	Parent interview	1	Less than high school
		2	High school graduate
		3	Some college or associate degree
		4	College graduate
		5	Postgraduate education
			For youth still living with parents, respondents reported about "the household [the youth] is now part of." For youth who were living elsewhere, respondents reported for the household of the youth's parent/guardian. Although the youth may have been absent from the parental home for some time, we assumed the characteristics of that household would have influenced the youth's experiences in earlier years. In crosstabulations, only data reported by parents are presented. In multivariate analyses, to maintain as large a sample as possible, a value was imputed for missing cases using a regression equation specifying income as a function of household income, whether the parent worked, number of hours the parent worked, urbanicity, whether it was a single-parent household, and ethnicity.

Table C-2 (Concluded)

INDIVIDUAL, HOUSEHOLD, AND COMMUNITY VARIABLES USED FREQUENTLY IN NLTS ANALYSES

Variable	Source	Values	Definition/Construction
1986 household income	Parent interview	1	Less than $12,000
		2	$12,000 to $19,999
		3	$20,000 to $24,999
		4	$25,000 to $37,999
		5	$38,000 to $50,000
		6	$50,000 or more
			In crosstabulations, only data reported by parents are presented. In multivariate analyses, to maintain as large a sample as possible, income was imputed for missing cases using a regression equation specifying income as a function of parent education, whether the parent worked, number of hours the parent worked, whether it was a single-parent household, urbanicity, and ethnicity.
Youth came from single-parent household	Parent interview	1	Single-parent household
		0	Two-parent household
Community location	Quality Education Data (QED)	1	Urban
		2	Suburban
		3	Rural
			Community location reflects the community in which the youth attended secondary school.

Special school enrollment for 16% of cases was determined from the survey alone, and 6% were determined from the abstract alone. For the 76% of cases that had both sources, there was 98% agreement between them. In cases with discrepancies, the survey was the preferred source.

Student Enrollment

School size was measured by the average daily attendance of students at the school (i.e., number of students attending in a typical day), as reported on the Survey of Secondary Special Education Programs. Enrollment of special education students in each disability category was reported in the same survey in response to the question, "*About how many **secondary** special education students fall into each of the following disability categories (please classify students by the primary disability; do not put students in more than one category).*" Respondents reported enrollment for the 11 federal special education disability categories and "other"

School Policies

Data on school policies come from the Survey of Secondary Special Education Programs.

Regarding mainstreaming policies, respondents in schools that also served nondisabled students answered the following items:

> *When your school mainstreams special education students, are usually expected to keep up with the rest of the class without special help? (Yes, no).*
>
> *Which of the following is available to regular education teachers when special education students are mainstreamed into their classes? (Circle all that apply)*
>
> *Consultation services by special education or other staff*
> *Special materials to use with the mainstreamed students*
> *Inservice training on the needs of mainstreamed students*
> *Human aides*
> *Smaller student load or class size*
> *None of the above*
>
> *Which of the following statements best describes your school's practice for grading secondary special education students who have been placed in regular education classes? Special education students in regular education classes are...*
>
> *Given grades that are based on the same standard as grades given regular education students*
> *Given grades that are based on a different standard than regular education students*
> *Not graded in these classes*

Regarding the school's policy toward students with disabilities more broadly, respondents in all types of schools answered the following question:

Which of the following best describes your school's ***primary*** *function in serving its learning handicapped secondary students (e.g., LD, EMR)? The school's primary function in serving the learning handicapped is...*

- *Teaching academic skills so that students fulfill course requirements and can graduate with their nonhandicapped peers*
- *Developing individuals with independent living skills so they can make their way in the adult world*
- *Training students for competitive employment after they leave school*
- *Does not apply, the school does not serve learning handicapped students*

Access to Programs

Data regarding the availability of programs in schools attended by students with disabilities come from the Survey of Secondary Special Education Programs. For several services, respondents were asked, "*In the 1986-87 school year, was (kind of program) provided to secondary special education students at your school? By this we mean... (description of program/service).*" The kinds of programs and the descriptions provided in the questionnaire included:

Kind of Program	Definition (By this, we mean...)
Life skills training	Training in skills such as cooking, managing money, or clothing oneself.
Career/job counseling	Vocational assessment or other help in identifying jobs students may be suited to.
Work adjustment/job readiness training	Training in work behaviors such as punctuality and how to get along with coworkers.
Work exploration/experience	Short-term, on-the-job work experience.
Specific job skills training	Training in a specific trade, such as car repair or clerical work.
Job development services	That someone from your school contacted employers to develop or identify job opportunities specifically for special education students.
Job placement services	That someone from your school helped special education students get jobs.
Postemployment services	Follow-up services to employers or employees to help special education students keep their jobs.

To determine whether a service was routinely provided, for each kind of program provided by the school, respondents were asked:

> *Which of the following statements best characterizes the types of secondary students who receive (kind of program) at your school?*
>
> *Provided routinely to both regular and special education students.*
> *Provided routinely only to special education students.*
> *Provided routinely only to students with certain disabilities.*
> *Provided only occasionally to special education students*
> *Rarely or never provided to special education students.*

A school was considered to be providing a program routinely to special education students if any of the first three responses were indicated.

Information on when students had access to such programs was solicited by asking schools the following question for each kind of program they indicating providing at all: "*In what grade(s) is (kind of program) usually provided to secondary special education students? Respondents circled all appropriate grades on a list of secondary grade levels (grades 7 through 12 and ungraded classes).*"

Students' Secondary School Programs (Box C)

Secondary School Enrollment Status

The NLTS classifies youth into three categories based on their secondary school enrollment status in the summer/fall of 1987:

> *In secondary school*
>
> *Out of secondary school less than 1 year*
>
> *Out of secondary school from 1 to 2 years*

Secondary school enrollment status is based on data from parent interviews and/or school record abstracts.

For 26% of youth, secondary school status is based on parent reports alone because no school record abstract was obtained. The parent interview source involves data from two items:

> *"Has (NAME) been enrolled in a junior or senior high school (or special school) in the past 12 months?*
>
> *Is (NAME) now enrolled, or will she/he been enrolled in the fall in (junior or senior high school/this special) school?"*

A youth is coded as in school if the parent responded positively to the second question. A youth is coded as out of school less than 1 year if the parent responded positively to the first question but negatively to the second. The youth is coded as out of school from 1 to 2 years if the parent responded negatively to both questions.

For 14% of youth, secondary school enrollment status is based on information from school records alone because no parent interview was completed. The school record abstract reports data from the student's most recent school year. Students whose most recent school year was 1985-86 were coded as out of school 1 to 2 years as of the 1987 interview. Students whose most recent school year was 1986-87 and who were reported as completing the school year by being promoted or not (as opposed to codes indicating the student had left school) were coded as in secondary school. This might result in an overestimation of the percentage of youth still in school if youth actually failed to return to school the following year. Those whose most recent school year was 1986-87 but who were reported as graduating, dropping out, aging out, being suspended/expelled or incarcerated/institutionalized, or who had withdrawn, moved, or transferred were coded as out of secondary school less than 1 year.

For 60% of youth, both the parent interview and school record abstracts were available as sources for secondary school enrollment status. Parents and school records agreed on the school enrollment status of 82% of these youth, with the greatest agreement (97%) apparent for students still enrolled in secondary school. There was agreement in 77% of cases that youth were out of school, but less agreement as to the length of time they had been out of secondary school. The following decision rules were used to resolve discrepancies:

- Parent reports of youth being in secondary school were accepted if 1986-87 school records indicated the youth had withdrawn, moved, dropped out, or been institutionalized or incarcerated, assuming the parent was reporting enrollment in a different program in the summer or fall of 1987 than had been attended during the preceding school year.
- If the parent indicated the youth had left school up to a year earlier, and the school record indicated the student had been enrolled in the 1986-87 school year and completed the school year, the parent report of the youth being out of school up to 1 year was accepted, assuming the parent was reporting school completion (i.e., dropping out or graduating) that occurred after the end of the school year.
- If the parent indicated the youth had left school more than 1 year earlier, but school records indicated enrollment in the 1986-87 school year, school records were accepted and students were coded as out of school up to 1 year.
- If the parent reported the youth was still in school, but a school record indicated the youth had graduated or aged out, or if the youth was beyond secondary school age, the youth was coded as having been out of school, assuming the parent was mistakenly reporting enrollment at a postsecondary school. If the school record was from 1985-86, the youth was coded as out of school 1 to 2 years; if the record was from 1986-87, the youth was coded as out of school up to 1 year.
- If the parent reported the youth was out of school up to 1 year, and the most recent school record abstract was for 1985-86 and indicated the student completed the school year, the parent report was accepted, assuming the student had enrolled in the 1985-86 summer or the 1986-87 school year in a different program and left in 1986-87.
- If the parent reported the student had been out of school 1 to 2 years and a school record for 1985-86 indicated the student had completed the year, the parent report was accepted, assuming the student had not returned to school in 1986-87.

Grade Level

Student grade level was collected from their school records for their most recent year in secondary school. Data abstractors responded to the following question: "*What was the student's grade level during the school year indicated on the cover sheet?*" Responses included grades 7 through 12 and ungraded.

Took Academic Classes

Academic course taking was determined from students' school records for their most recent school year. Record abstractors recorded all courses in which students were enrolled in the school year. If a student was reported to have taken any of the following kinds of courses, he/she was coded as having taken an academic course: English/reading, mathematics, science, social studies, or foreign language.

The number of hours per week for academic courses was calculated by multiplying the number of semesters for which the student was reported to have taken each academic course by 18 (the average weeks in each semester); the product was then multiplied by the hours per week recorded by the abstractor for that course. The products were summed for all academic courses and divided by 36, the average number of weeks in a school year.

Took Vocational Education

The variable indicating whether the youth took vocational education uses three sources: the school record, parent interviews, or the Survey of Secondary Special Education Programs. The primary source was the school record; a student was coded as having taken vocational education if any course was listed in the vocational education or home economics sections of the course list completed by the abstractor. A student also was considered as having taken vocational education if the record abstract was missing, but the Survey of Secondary Special Education Programs indicated that the student had attended a secondary vocational school. If neither of these sources was available, responses were based on parent reports. The parent interview items included the following:

> *"What kinds of job training or help has (NAME) had in the past 12 months? Has he/she had...*
>
> *1 Testing to find out his/her work interests or abilities*
> *2 Training in specific job skills, like care repair or food service*
> *3 Training in basic skills needed for work, like counting change, telling time, or using transportation to get to work*
> *4 Career counseling (like help in figuring out jobs (NAME) might be suited to*
> *5 Help in finding a job or learning to look for one."*
>
> *"Who has given (NAME) job training or help in the past 12 months?" Response categories included, among others, "youth's junior or senior high school" and "a special secondary school for the disabled."*

If a respondent gave a positive response to category 2 of the first item and the only source indicated for the service was a secondary school (special or regular), the student was indicated as having received vocational education from the school in the most recent school year.

For 16% of cases, vocational education information was based on the school record or school survey alone; for 21% of cases it was based on the parent interview alone. For 63% of cases, multiple sources were available. In the event of discrepancies, a student was coded as having taken vocational education if any single source met the criteria for a positive response.

In addition to a variable indicating general vocational enrollment, the NLTS created a variable indicating whether the vocational education was occupationally oriented. If a student's school record listed a vocational course, the following item was asked of record abstractors:

> *"If the student has taken vocational education classes during the school year indicated on the cover sheet, please indicate the type of vocational education taken."*

1 *Agriculture (e.g., animal and plant science, landscaping/gardening, horticulture/nursery, forestry)*
2 *Distributive education (e.g., retailing, banking and finance, cashier, hotel/tourism/recreation, marketing and sales, advertising, warehousing, transportation/driver, real estate)*
3 *Health occupations (e.g., health care, medical and dental assistant,nursing, community and environmental health)*
4 *Office occupations (e.g., secretarial, clerical, typing, accounting, data processing, computer programming and operations)*
5 *Technical education (e.g., engineering, architecture, aeronautics)*
6 *Machine shop, auto and motor repair*
7 *Construction trades (e.g., carpentry, masonry, plumbing, wood working, metal working, welding)*
8 *Electrical, electronics, communication, air conditioning*
9 *Manufacturing, industrial arts*
10 *Painting, interior design/decorating*
11 *Graphic and commercial arts, drafting, printing, photography*
12 *Food services, cook, food server, hostess, dishwasher*
13 *Personal services, cosmetology, laundry/cleaning*
14 *Custodial services/janitor*
15 *Fireman, law enforcement, public service*
16 *Other (SPECIFY)*
17 *Career exploration, prevocational skills, work adjustment*
18 *Sheltered workshop, supported employment*
19 *Work study/experience, on-the-job training*
20 *Clothing/textiles*
21 *Child care, nursery school*

If the record indicated a positive response to categories 1 through 15, 20 or 21, the student was counted as having received occupationally oriented vocational education.

If no school record was available for a student, but the Survey of Secondary Special Education Programs indicated the student had attended a secondary vocational school, the student was assumed to have had occupationally specific training at that school. If neither the school record or school survey were available, but the parent reported the youth had received training in specific job skills and the source was the youth's secondary school, the youth was coded as having taken occupationally oriented vocational education.

Also, this variable was the basis for variables indicating the number of hours of vocational education received (as a whole and occupationally oriented). Only school record responses contributed to this variable because no indication of amount of vocational training was included in the parent interview or Survey of Secondary Special Education Programs. The number of hours per week for vocational courses was calculated by multiplying the number of semesters for which the student took each vocational course by 18 (the average weeks in each semester); the product was then multiplied by the hours per week recorded for that course. The products were summed for all vocational courses and divided by 36, the average number of weeks in a school year.

Regular Education Placements

Classroom placement data came from students' school records for their most recent school year. For each class a student took in the school year, the record abstractor indicated whether it was a regular education or special education course. Several placement-related variables were created from these data.

A series of variables was created indicating whether a student took at least one of the following kinds of classes in regular education: academic, nonacademic, and vocational. If a student took one or more of the particular kind of class, and if one of the classes taken was in regular education, the student was coded as having taken at least one of the kinds of classes in a regular education placement.

We also created a variable indicating the total percentage of class time students spent in regular education classes. For each class taken, the record abstractor reported the hours per week the student spent in that class and the number of semesters taken. The hours per week were multiplied by the number of semesters; the product then was multiplied by 18, the average number of weeks in a semester, to yield the total class time for each student. A similar algorithm then was applied only to classes taken in regular education placements, to yield the total class time spent in regular education. The regular education class time, divided by the total class time produced the percentage of class time each student spent in regular education classes.

Support Services Received

The NLTS investigated whether the youth had received the following kinds of support services: speech therapy, personal counseling/therapy, physical therapy/mobility training, and help from a tutor/reader/interpreter. For each kind of service, three variables were created: whether the service had ever been received, whether it had been received in the preceding year, whether it had been received in the preceding year from the youth's secondary school.

The two sources of data for items regarding receipt of services were the parent interviews and school records. The parent source involved responses to the following three kinds of questions, which were asked of the majority of respondents about each service:

> *"Has (NAME) ever had (kind of service)?"*
>
> *"Has (NAME) had any of this (kind of service) in the past 12 months?"*
>
> *"Who has given (NAME) (kind of service) in the past 12 months?" Response categories (not read to respondent) included, among other sources, "youth's junior or senior high school", and "special secondary school for the disabled."*

These items were asked for all noninstitutionalized youth regarding speech therapy, personal counseling/therapy, and help from a tutor/reader/interpreter. Items related to physical therapy/mobility training were not asked of parents whose youth were classified as learning disabled, emotionally disturbed, or speech impaired only (no other additional disabilities named by the school/district or parent) because that service was assumed not to pertain to those disabilities. Youth with these disabilities only were coded as having not received the service ever, in the past year, or from the school, unless the school record abstract indicated otherwise.

For youth reported as living in an institution (a hospital/medical facility, mental health facility, institution for those with disabilities, or correctional facility), the following item was asked:

> *"Is (NAME) getting any of the following kinds of help at this place (the institution)?" Response categories included, among others:*
>
> *Speech or language therapy*
> *Personal counseling or therapy*
> *A tutor, reader, or interpreter*
> *Physical therapy or mobility training (e.g., help with walking or wheelchair use*

A positive response to a service was coded as having received the service ever and in the past 12 months. Institutionalized youth were not included in the calculation of services received from the school.

The school record abstract source involved the following item:

> *"Which of the following services did the student receive from or through the school system (this can include contracted services) during the school year indicated on the cover sheet?"*
>
> *1 Physical therapy*
> *2 Occupational therapy*
> *3 Assisting devices or physical adaptations*
> *4 Mental health services, personal counseling, therapy, or psychiatric care*

5 *Speech or language therapy*
6 *Hearing-loss therapy*
7 *Tutor, reader, or interpreter*
8 *Special transportation because of disability*
9 *Adaptive physical education*
10 *Health services (e.g., catheterization)*
11 *Testing for disabilities (e.g., psychological assessment, classroom observation*
12 *Social work services*
00 *None of the above*

Responses were coded into the support services variables as follows:

If response circled:	Coded as received:
5	Speech therapy
4, 12	Personal counseling/therapy
1, 10	Physical therapy/mobility training
7	Tutor/reader/interpreter

Responses for approximately 16% of cases were based on the school record alone, 25% on the parent interview alone, and 59% on both sources.

In cases having two sources, the extent of agreement between the sources varied among the services and, for a given service, among the variables, as indicated in Table C-3. Agreement was generally highest for receipt of physical therapy and, for all services, was highest for services received in the preceding year and lowest for services received from the school. For cases in which both sources of data were available, the following decision rules were applied to resolve discrepancies between sources.

- If either the parent interview or a record abstract indicated the service had been received, the student was coded as having ever received the service.
- If either the parent interview or a 1986-87 record abstract indicated the service had been received, the student was coded as having received the service in the preceding year.
- If either the parent interview or a 1986-87 record abstract indicated the service had been received from the school in the past year, the student was coded as having received the service in the preceding year from the school.

Discrepancies between the two sources were not considered problematic because of logical explanations for why one source would report the service and another not report it. For example, a parent might report a service received from a source other than the school; the school record would not indicate such a service. Conversely, the school might indicate a support service, such as a tutor, on an IEP, which would appear then on the record abstract, about which the parent being interviewed might simply have been unaware. Even in the case of the school providing the service, discrepancies are logically possible. For example, the parent might have been aware of a child's consultation with a school counselor that was unrelated to a disability, and would have reported it as counseling received from the school. Such a service would not have been included on an IEP or reported on a school record abstract form.

Table C-3

EXTENT OF AGREEMENT BETWEEN SOURCES FOR VARIABLES RELATED TO SUPPORT SERVICES RECEIVED BY YOUTH

Service Variables	Number of Cases With Two Sources	Percentage In Agreement
Received speech therapy		
Ever	4801	66
In past year	4741	80
In past year from school	4741	69
Received counseling/therapy		
Ever	4786	68
In past year	4753	80
In past year from school	4753	46
Received help from a tutor/reader/ interpreter		
Ever	4769	58
In past year	4737	73
In past year from school	4737	59
Received physical therapy/ mobility training		
Ever	4793	80
In past year	4774	88
In past year from school	4774	55

Occupational Therapy/Life Skills Training Received

The NLTS investigated whether the youth had received occupational therapy or life skills training, and constructed variables indicating whether the service had ever been received, whether it had been received in the preceding year, and whether it had been received in the preceding year from the youth's secondary school.

The two sources of data for these items are the parent interviews and school records. The parent source involved responses to the following three questions, which were asked for all noninstitutionalized youth:

> *"Has (NAME) ever had any occupational therapy or other instruction in life skills, other than from family members or friends? Life skills instruction might include learning to manage money or learning cooking or housekeeping skills. Occupational therapy might include help in learning feeding, dressing, toileting, or grooming."*

> *"Has (NAME) had any occupational therapy or life skills training, other than from family members or friends, in the past 12 months?"*
>
> *"Who has given (NAME) occupational therapy or life skills training in the past 12 months?" Response categories (not read to respondent) included, among other sources, "youth's junior or senior high school", and "special secondary school for the disabled."*

For institutionalized youth, the following item was asked: *"Is (NAME) getting any of the following kinds of help at this place (the institution)?* Response categories included, among others, *"occupational therapy or life skills training (e.g., feeding, dressing, money management)."*

A positive response to this item was coded as receiving the service/training ever and in the past 12 months. Institutionalized youth were not included in the calculation of services received from the school.

The school record abstract source involved two items:

> *The listing of courses that the student had taken in the most recent school year (1985-86 or 1986-87). One category of courses was home economics and life skills training. If the student was reported as taking this kind of course in the 1985-86 school year, he/she was recorded as "ever" receiving the training/service, but "don't know" regarding receipt in the preceding year. Students reported as taking such courses in the 1986-87 school year were coded as receiving training/service ever, in the past year, and from the school in the past year.*
>
> *"Which of the following services did the student receive from or through the school system (this can include contracted services) during the school year indicated on the cover sheet?" Response categories included, among others, "occupational therapy."*

If a positive response was given to the second item only, the student was coded as receiving the training/service ever, in the past year, and in the past year from the school.

Responses for approximately 17% of cases were based on the school record alone, 25% on the parent interview alone, and 58% on both sources. In cases having two sources for these variables, there was agreement between the sources in about half the cases regarding receipt of services. The following decision rules were applied to resolve discrepancies between sources.

- If either the parent interview or a record abstract indicated the service had been received, the student was coded as having ever received the service.
- If either the parent interview or a 1986-87 record abstract indicated the service had been received, the student was coded as having received the service in the preceding year.
- If either the parent interview or a 1986-87 record abstract indicated the service had been received from the school in the past year, the student was coded as having received the service in the preceding year from the school.
- For hours of service received in the past year, the higher value was taken from either the parent interview or the 1986-87 school record.

Discrepancies between the two sources were not considered problematic because of logical explanations for why one source would report the service and another not report the service, as described in the preceding section.

Number of Services Received

For each student, we determined which of the following services were received, using the procedures described above: speech therapy, physical therapy/mobility training, occupational therapy/life skills training, personal counseling/therapy, help from a tutor/reader/interpreter. A summary measure was created indicating the total number of services received by each student. This variable ranged from 0 (none of the services received) to 5 (all of the services received).

Secondary School Outcomes (Box D)

School Absenteeism

Absenteeism data were collected from students' school records for their most recent school year. Record abstractors responded to the following question: "*During the school year indicated on the cover sheet, how many days was this student absent, excluding days suspended? If days aren't available, indicate the number of classes the student was absent.*"

Classes absent were converted to days absent by dividing the number of classes by 7, the average number of classes in a full secondary school day. Data were missing from 15% of abstracts. Analysis of missing data revealed no significant differences between students with data present and those with data missing in their disability category, grade level, functional abilities, IQ score, type of school attended, or grade point average.

Grade Performance

Grade performance was analyzed in two forms: grade point average, and a dichotomous variable indicating whether a student had failed any course in the most recent school year. Grade point average is calculated on a 4-point scale, with a grade of A assigned 4 points, B assigned 3 points, C assigned 2 points, D assigned 1 point, and failed courses assigned no value. Points are summed and divided by the total number of courses, including those failed. The dichotomous variable was calculated for students receiving any course grades; a code of 1 was assigned if a student had failed any course (for either a single semester or a full year) and 0 if no course had been failed.

There are two reasons to suspect that the grades abstracted from students' records may overestimate grade performance. First, not all students received grades. Understanding which students received grades and which did not is important in interpreting course grades.

NLTS data reveal that 11% of students with disabilities did not receive grades in any courses in their most recent year in secondary school. As was shown in Chapter 4, the receipt of grades is strongly associated with the nature and severity of students' disabilities. For example, 55% of students with low functional mental skills did not receive grades, compared with only 4% of students with high functional mental skills. Hence, course grades "cream" the special education student population by eliminating students with more severe disabilities and lower functional skills. Because students who did receive grades were the more capable students in special education, we would expect grades to be generally higher and more similar to students in regular education than would be the case if all students in special education were considered.

Second, there may be a reporting bias in grade data. For students who were taking a single course for two semesters and received two different grades, record abstractors were instructed to record the more recent grade. However, when transcripts were obtained for a subsample of students and compared with grades recorded by abstractors, 34% of the 157 cases reviewed showed discrepancies between transcript grades and record abstract grades. The majority of these cases involved abstractors reporting the higher of 2 grades received for 2-semester courses, rather than the most recent grade. Generally only 1 course per student was involved in a grade discrepancy and the grade change was virtually always only 1 grade point (i.e., a B reported as the higher grade when a C was the most recent grade). This degree of overestimation of the GPA for a given student with 7 graded courses would be .14 (i.e., the difference between a GPA of 3.0 and a GPA of 2.86). If this overestimation affected one-third of the full sample, as it did of the cases validated, it would result in a GPA overestimation of .05 for the full sample. However, because the subsample used for this comparison was small and included students from only four disability categories, it is unknown to what extent this tendency to record the more favorable grade pervades the grade data analyzed here for the full sample. Further, in a handful of cases, failed courses were not included on the record abstract form because students received no credit for them. Hence, GPAs actually may have been marginally lower and failure rates marginally higher than those reported.

School Completion Status

The school completion status variable has four categories: graduated, dropped out, aged out, and suspended/expelled. An exiter's completion status was derived from the parent interview and/or the school record abstract. Parents who said youth were no longer in secondary school were asked, "Did (NAME) graduate, voluntarily leave school, was (he/she) suspended or expelled or is (he/she) older than the school age limit?"

The school record abstract item asked:

> *"What was this student's status at the end of the school year?" Possible responses included:*
>
> *Graduated*
> *Exceeded the school age limit*

Completed the school year and promoted to the next grade level
Completed the school year but not promoted to the next grade level
Dropped out
Permanently expelled
Transferred/moved to another school
Incarcerated
Institutionalized due to handicap
Other (specify)
Don't know

For 30% of cases, school completion status was based on the parent interview alone. For 16% of cases, values were based on the school record abstract alone; the school abstract response was used by collapsing responses into the 4 completion status categories as follows:

School Completion Status	Record Abstract Response
Graduated	Graduated
Aged Out	Exceeded the school age limit
Dropped out/left	Dropped out
	Withdrew
	Institutionalized
	Incarcerated
	Other
Suspended/expelled	Permanently expelled

For the 55% of cases in which both sources were available, there was agreement between them for 78% of cases. For the remaining cases, the following discrepancies were noted and resolutions made:

- In cases in which the school reported the youth transferred, moved, or withdrew, the parent report was the basis for categorization, assuming the parent knew the final status of the youth after a move, transfer, or withdrawal from a given school.
- Schools were considered the best source of information if a discrepancy involved whether the youth graduated vs. aged out, assuming the parent was less clear than the school about age limits for service and what constituted graduation.
- The parent was considered the best source of information in cases in which the school indicated the youth had completed the school year, but the parent reported a more final disposition that could have occurred because of school work done in the summer (i.e., resulting in graduation) or because of decisions made in the summer not to return in the fall (i.e., dropping out). Similarly, parents' reports of graduation were accepted when the school reported the youth dropped out or was suspended because further school work in the summer could have resulted in graduation by the time of the interview. Parent reports of a more final status (e.g., dropping out) also were accepted when the school reported what was considered an intermediate status, such as incarceration or institutionalization.
- Youth were categorized as dropouts, based on the school report, when the parent contended the youth exceeded the age limit but the youth was not old enough to have done so, or if the parent reported the youth had been suspended.

Employment Rates

Analyses of employment of secondary school students included several variables, including whether the youth had a work-study job, any current job, or any job in the preceding year. To measure work-study participation, parents of youth who had been in secondary school in the preceding year were asked, "*Has (NAME) had a work-study job in the past 12 months, that is, a job he/she does as part of the school program or that he/she does for school credit?*" A dichotomous variable was created coded 1 for positive responses and 0 for negative responses.

To measure whether the youth had any paid job, parents of youth who had been in secondary school in the preceding year and who had earlier responded that their child had had a work-study job in the preceding year were asked, "*Did (NAME) get paid for this work?*" All parents were asked, "*Does (NAME) now do any work for which he/she gets paid, other than (his/her work-study job or) work around the house?*" (words inserted for those with paid work-study jobs). All students currently employed in a work-study or other job were coded has having had a job in the preceding year. In addition, parents answering no to the question on current paid jobs, were asked, "*Has (NAME) done any work for pay in the past 12 months, other than (his/her work study job or) work around the house?*" A dichotomous variable was created coded 1 for positive responses and 0 for negative responses.

Job Profiles

Parents were the source of information on the types of jobs held by working students, hours worked, and wages earned.

Parents who reported that students currently had a paid job were asked, "*What did/does (he/she) do?*" Interviewers probed to obtain information on both the kind of work performed and the kind of place in which the work was done (e.g., clerk at a clothing store). Verbatim responses were recorded by interviewers and later coded into job categories using the Bureau of the Census Occupational Classification Code system (U.S. Bureau of the Census, 1970).

Parents also were asked, "*About how many hours a week does (NAME) usually work at this job?*" Wages earned at currently held paid jobs were measured using responses to the following question: "*About what is (his/her) pay for this work?*" If parents requested clarification, they were told we were interested in pay before taxes or deductions. Parents could report wages earned per hour, per week, per month, or per year. Wages reported other than hourly were converted to hourly wage by calculating a weekly wage and dividing it by the average number of hours worked per week.

Seeing Friends

Parents were asked, "*About how many days a week does (NAME) usually get together with friends outside of school?*" (CATEGORIES NOT READ; IF YOUTH LIVED IN A RESIDENTIAL SCHOOL, THE WORDS "*outside of class*" REPLACED "*outside of school*".) Responses ranged from "never" to "6 or 7 days a week". For analyses of social isolation, a dichotomous variable was constructed with students who saw friends less than once per week being coded as 1 and all others as 0. For analyses of frequency of contact with friends, categories ranged from 1 (once a week) to 4 (6 or 7 days a week).

Group Membership

Parents were asked: "*In the past 12 months, has (NAME) belonged to any school or other group, like sports teams, Scouts, a church group, or band?*" A dichotomous variable was constructed with a code of 1 for yes and 0 for no. Parents whose children had belonged to a group were then asked the type of group(s) to which youth had belonged. Open-ended responses were coded into the following categories:

Sports teams (in or out of school; includes Special Olympics)	01
Performing groups (e.g., choir, band, dance, theater)	02
Community groups (e.g., Scouts, church groups, political groups)	03
School subject matter clubs (e.g., science, language)	04
Hobby clubs (e.g., photography, computer club)	05
Student government (e.g., student council)	06
Volunteer service groups (e.g., candystripers)	07
Junior Achievement/Vocational clubs (e.g., Future Homemakers, DECA)	08
Other (Specify)	97
Don't know	98

Arrest

Parents were asked: "*Has (NAME) ever been arrested?*" A dichotomous variable was constructed with a code of 1 for yes and 0 for no.

Residential Independence

Parents were asked, "*Where does (NAME) live now?*" If parents asked for clarification, they were told "*By live, we mean the place (NAME) usually spends at least 5 nights a week*". Responses were coded into the following categories:

With parent/guardian
Alone
With a spouse or roommate
With another family member, other than youth's spouse
In a residential or boarding school other than a college
In a college dormitory
In military housing
In a supervised group home
In a mental health facility

In a hospital/medical facility or institution for the disabled
In a correctional facility
Other

Youth were considered to be institutionalized if they were reported to be living in a mental health facility, hospital/medical facility or institution, or a correctional facility. Parents of youth living in institutions were asked, "*How long has (NAME) lived there?*" If youth had been institutionalized more than 1 year, they were considered out of school.

Home-Care Independence

Parents of all youth still living with parents (the majority of secondary school students) were asked to report how often youth performed the following chores: fix his/her own breakfast or lunch, buy a few things at the store like groceries or other things he/she needs, do laundry, straighten up his/her own room or living area. For each chore, parents were asked, "*When the following chores need doing, about how often, on his/her own, does (NAME)...(insert type of chore). Would you say it is always, usually, sometimes or never?*"

For some analyses, percentages of youth performing each chore with each frequency are reported. For others, a scale was formed by assigning a value of 4 to "always," 3 to "usually," 2 to "sometimes" and 1 to "never." Scores were summed for the 4 tasks to create a scale ranging from 4 to 16. Youth who were missing one or more of the items that make up the scale were omitted from crosstabulations using the scale. Simple correlations between items and the scale were significant at the <.0001 level:

	Fix Meals	Buy Items	Do Laundry	Clean Area	Home-Care Scale
Fix breakfast/lunch (N=5,883)	1.00	.39	.36	.28	.71
Buy items at a store (N=5,863)		1.00	.36	.25	.70
Do laundry (N=5,876)			1.00	.28	.73
Clean living area (N=5,886)				1.00	.65
Home-care scale (N=5,836)					1.00

Postsecondary Outcomes

Postsecondary Education

Parent interviews were the source of all information about postsecondary education. Enrollment was measured for the following: GED programs, postsecondary vocational/trade schools, 2-year or junior colleges, and 4-year colleges or universities. For each kind of school or program, parents of out-of-school youth were asked, "*In the past 12 months, has (NAME) taken any courses from...(type of program or school)?*" For youth who had been out of secondary school more than 1 year, this measure of enrollment in the preceding year did not include courses that might have been taken in the first year after secondary school (i.e., 1986) unless they also were taken in 1987.

If parents reported youth had taken courses to earn a high school diploma, they were asked whether the youth had gotten a diploma or degree from that coursework. If parents reported youth had attended the other kinds of postsecondary schools, the following questions were asked about each kind of school attended:

> *"About how many courses has (NAME) taken in the past 12 months (from the kind of school)?"*
>
> *Has (NAME) gotten a diploma, certificate, or license from this work?*

If parents reported youth had attended either a postsecondary vocational school, or a 2-year or 4-year college, they were asked:

> *"About how well has (NAME) done in his/her classes or programs in the past 12 months? Would you say he/she has gotten:*
>
> *Mostly A's (3.75 to 4.00 grade point average)*
> *About half A's and half B's (3.25 to 3.74 GPA)*
> *Mostly B's (2.75 to 3.24 GPA)*
> *About half B's and half C's (2.25 to 2.74 GPA)*
> *Mostly C's (1.75 to 2.24 GPA)*
> *About half C's and half D's (1.25 to 1.74 GPA)*
> *Mostly D's or below (less than 1.25 GPA)*
> *No grades, courses not graded.*

Employment

Analyses of employment for youth no longer in secondary school included variables measuring current paid employment and paid employment in the preceding year, measured as described earlier in the section on secondary school outcomes. Types of jobs, hours worked, and wages earned also were included in the postsecondary analyses, using variables identical to those described as secondary school outcomes. However, additional variables also were constructed for youth no longer in secondary school, continuing to rely on parent interviews as the data source.

The rate at which youth had paid jobs in sheltered workshops was measured by asking parents of youth who had paid jobs, "*Does (NAME) do this work at a sheltered workshop, that is a place where most of the other workers are disabled?*" Tenure of current jobs was determined for all youth who were reported as currently employed by asking parents, "*How long has (NAME) had this job?*" All responses were converted to the number of months the youth had had the job. Finally, for all youth who had held a job in the preceding year, but was not employed at the time of the interview, the means by which the youth left the job was determined by asking parents, "*Why did (NAME) leave that job? Did he/she quit, was he/she fired, was he/she laid off, or was it a temporary job that ended?*"

Social Activities

Outcomes related to seeing friends, belonging to groups, and arrest rates were measured for out-of-school youth in the same was as described for secondary school students with a somewhat different categorization of groups youth belonged to. An additional variable indicating marital status was measured for out-of-school youth, using parents responses to the following:

> *"What is (NAME's) marital status? Is he/she (READ CATEGORIES)*
>
> *Engaged*
> *Single, never married*
> *Married or living with someone of the opposite sex*
> *Divorced or separated*
> *Widowed*

Independence

Residential independence was measured in the same way for out-of-school youth as described earlier for secondary school students. Home-care activities also were measured as described earlier, for all youth still living with parents. An additional aspect of independence for out-of-school youth focused on use of three financial management tools. Parents were asked:

> *"Does (NAME) have a savings account?"*
> *"Does (NAME) have a checking account?"*
> *"Does (NAME) have any credit cards or charge accounts in his/her own name?"*

Dichotomous variables were constructed for each of the financial management tools, coded 1 if the youth was reported has having the kind of account or credit card. A summary measure also was constructed, coded 1 if the youth used any of the types of financial management tools, and 0 if the youth used none of them.

Engagement During the Past Year

Parent interviews were the source of data for this variable. Only youth out of school at least 1 year at the time of the interview were included in the calculation of this variable. Data reported in Tables 10-2 through 10-12 and Table 10-17 and Table 10-18 consider youth to be productively engaged if they had participated in one or more of the following educational or work activities during the preceding 12 months:

- Received training in specific job skills, like car repair or food service, from someone other than a family member (B3 and B5b were answered "yes," and the answer to B4 was not "a family member or friend"):

B3. *Has (NAME) had any of this job training or help in the past 12 months?*
B4. *Who has given this job training or help in the past 12 months?*
B5b. *What kinds of job training or help has (NAME) had in the past 12 months? Has he/she had...Training in specific job skills, like car repair or food service?*

- Took courses to earn a high school diploma after leaving secondary school, as indicated by parents answering yes when asked, "*In the past 12 months, has (NAME) taken any courses to earn a high school diploma?*"
- Took courses from a vocational or trade school, a 2-year junior or community college, a 4-year college or university, indicated by parents responding yes to any one of the following:

  "In the past 12 months, has (NAME) taken any courses from a vocational or trade school?"

  "In the past 12 months, has (NAME) taken any courses from a 2-year junior college or community college?"

  "In the past 12 months, has (NAME) taken any courses from a 4-year college or university?"

- Worked for pay, other than work around the house, indicated by parent responding yes when asked, "*Has (NAME) done any work for pay in the past 12 months, other than work around the house?*"
- Did volunteer work, not including work around the house, indicated by parent responding yes when asked, "*Has (NAME) done any volunteer work, not including work around the house, in the past 12 months?*"

The engagement variable based on the parent interview and reported in Tables 10-10, 10-11, and 10-12 (column 1) was created in the same manner, except that question current employment was used instead of employment in the past 12 months. Parents were asked, "*Does (NAME) now do any work for which (he/she) gets paid, other than (his/her) work study job or work around the house?*" This modification was made to facilitate comparisons to data from the exiter substudy.

Current Engagement

Current engagement was calculated from data generated by the exiter substudy and is reported in Tables 10-10, 10-11, 10-12, 10-16, and Figure 10-5. Youth were considered to be productively engaged if they were currently participating in one or more of the following educational or work activities:

- Received training in specific job skills, like car repair or food service, from someone other than a family member (B2 and B9b were answered "yes," and the answer to question B7 was not "a family member or friend"):

B2. *Is (NAME) getting any job training or help now?*
B7. *Who has given (NAME) job training or help?*
B9b. *What kinds of job training or help has (NAME) had since leaving high school? Has he/she had...Training in specific job skills, like car repair or food service?*

- Took courses to earn a high school diploma after leaving secondary school (F2 and F4 (parent respondent) or J2 and J4 (youth respondent) were answered "yes"):

  F2. Since leaving high school, has (NAME) taken any classes to earn a high school diploma, such as a GED class?
  F4. Is (NAME) taking these classes now?
  J2. Since leaving high school, have you taken any classes to earn a high school diploma, such as a GED class?
  J4. Are you taking these classes now?

- Took courses from a vocational or trade school, a 2-year junior or community college, a 4-year college or university (F7, F15, or F22 (parent respondent) or J7, J15, or J22 (youth respondent) was answered "yes"):

  F7. Is (NAME) taking any classes from a 2-year college now?
  F15. Is (NAME) taking any classes from a vocational or trade school?
  F22. Is (NAME) taking any classes from a 4-year college or university now?
  J7. Are you taking any classes from a 2-year college now?
  J15. Are you taking any classes from a vocational or trade school?
  J22. Are you taking any classes from a 4-year college or university now?

- Worked for pay, other than work around the house (E1 (parent respondent) or H1 (youth respondent) were answered "yes"):

  E1. Does (NAME) have a paid job?
  H1. Do you have a paid job?

- Did volunteer work, not including work around the house (E61 (parent respondent) or H64 was answered "yes"):

  E61. Is (NAME) doing any volunteer work now? (parent respondent?)
  H64. Are you doing any volunteer work now? (youth respondent)?

REFERENCES

U. S. Bureau of the Census. (1970). Classified index of industries and occupations. Washington, DC: U. S. Government Printing Office.

Appendix D

SUPPLEMENTAL STATISTICAL TABLES

Table D2-1

VARIATIONS IN ETHNICITY OF YOUTH WITH DISABILITIES BY DISABILITY CATEGORY

	Percentage of Youth Who Were:				
Disability Category	White	Black	Hispanic	Other	N
All conditions	65.0 (1.4)	24.2 (1.2)	8.1 (.8)	2.7 (.5)	7,141
Learning disabled	67.2 (2.2)	21.6 (1.9)	8.4 (1.3)	2.8 (.8)	994
Emotionally disturbed	67.1 (2.6)	25.1 (2.4)	6.0 (1.3)	1.7 (.6)	644
Speech impaired	54.2 (3.3)	28.0 (3.0)	14.2 (2.3)	3.5 (1.2)	490
Mentally retarded	61.0 (2.1)	31.0 (2.0)	5.6 (1.0)	2.5 (.7)	936
Visually impaired	63.6 (3.2)	25.9 (2.9)	8.1 (1.8)	2.4 (1.0)	753
Hard of hearing	63.4 (3.3)	18.7 (2.7)	13.6 (2.4)	4.3 (1.4)	685
Deaf	62.7 (2.9)	24.5 (2.5)	9.6 (1.7)	3.3 (1.1)	797
Orthopedically impaired	63.1 (3.2)	19.0 (2.6)	15.1 (2.4)	2.8 (1.1)	681
Other health impaired	54.2 (3.6)	20.3 (2.9)	22.5 (3.0)	3.0 (1.2)	437
Multiply handicapped	65.6 (3.6)	19.1 (3.0)	12.1 (2.5)	3.2 (1.3)	636
Deaf/blind	67.0 (6.9)	25.0 (6.4)	5.8 (5.8)	2.2 (2.2)	86

Note: Standard errors are in parentheses.

Source: Parent interviews and school district special education rosters.

Table D2-2

SOCIOECONOMIC CHARACTERISTICS OF HOUSEHOLDS OF YOUTH WITH DISABILITIES

		Primary Disability Category											
Characteristics of Households	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Ortho-pedically Impaired	Other Health Impaired	Multiply Handi-capped	Deaf/ Blind
Percentage in household with 1986 annual income:												
Less than $12,000	34.8 (1.5)	31.1 (2.3)	38.2 (2.9)	37.1 (3.5)	42.1 (2.4)	34.1 (3.4)	27.8 (3.2)	33.5 (3.0)	36.7 (3.5)	42.2 (3.9)	36.8 (4.2)	30.4 (7.4)
$12,000 to $24,999	33.5 (1.5)	34.3 (2.4)	32.1 (2.8)	33.6 (3.4)	32.5 (2.3)	32.3 (3.4)	36.8 (3.5)	32.6 (3.0)	30.5 (3.4)	26.9 (3.5)	35.9 (4.2)	35.8 (7.7)
$25,000 to $37,999	16.2 (1.2)	17.6 (1.9)	15.7 (2.2)	13.4 (2.5)	13.6 (1.7)	20.2 (2.9)	18.5 (2.8)	18.4 (2.5)	12.8 (2.5)	14.6 (2.8)	11.6 (2.8)	14.0 (5.6)
$38,000 to $50,000	9.3 (.9)	10.4 (1.5)	7.9 (1.6)	7.4 (1.9)	8.1 (1.3)	7.3 (1.9)	10.1 (2.2)	9.0 (1.8)	8.9 (2.1)	7.5 (2.1)	7.4 (2.3)	10.5 (4.9)
More than 30 days	6.1 (.7)	6.6 (1.2)	6.1 (1.5)	8.5 (2.0)	3.7 (.9)	6.1 (1.7)	6.7 (1.8)	6.5 (1.6)	11.0 (2.3)	8.5 (2.2)	8.3 (2.4)	9.3 (4.6)
N	6,092	846	552	425	780	639	620	701	585	368	504	72
Percentage with head of household with highest education being:												
Some high school	41.0 (1.5)	37.8 (2.3)	43.7 (2.9)	46.1 (3.5)	49.4 (2.3)	36.6 (3.3)	36.1 (3.3)	33.6 (2.9)	32.5 (3.3)	35.6 (3.6)	32.4 (3.9)	38.5 (7.6)
High school diploma	36.0 (1.4)	39.1 (2.3)	29.1 (2.7)	28.3 (3.1)	33.1 (2.2)	33.0 (3.2)	36.1 (3.3)	36.9 (2.9)	32.9 (3.3)	28.7 (3.4)	38.4 (4.1)	38.2 (7.6)
Some college or 2-year degree	14.0 (1.0)	14.5 (1.7)	18.0 (2.2)	13.0 (2.3)	10.2 (1.4)	15.7 (2.5)	14.8 (2.5)	18.7 (2.4)	17.6 (2.7)	19.1 (2.9)	16.4 (3.1)	11.5 (5.0)
4-year college degree or more	8.9 (.9)	8.6 (1.3)	9.2 (1.7)	12.7 (2.3)	7.3 (1.2)	14.6 (2.4)	13.0 (2.3)	10.7 (1.9)	17.0 (2.6)	16.6 (2.8)	12.8 (2.8)	11.8 (5.0)
N	6,650	927	591	454	865	722	672	760	634	411	538	76
Percentage in household that received:												
Social Security Disability Income	9.6 (.9)	7.2 (1.2)	9.5 (1.7)	8.5 (1.9)	15.0 (1.6)	13.0 (2.3)	8.4 (1.9)	12.6 (2.0)	12.5 (2.2)	11.0 (2.3)	16.1 (3.0)	6.2 (3.8)
Social Security survivors benefits	8.1 (.8)	6.7 (1.2)	8.2 (1.6)	9.2 (2.0)	11.4 (1.4)	7.5 (1.8)	5.9 (1.6)	8.6 (1.7)	8.1 (1.9)	8.5 (2.1)	7.6 (2.2)	3.4 (2.8)
Supplemental Security Income	14.4 (1.0)	6.1 (1.1)	11.3 (1.8)	12.1 (2.3)	30.2 (2.1)	36.6 (3.3)	18.7 (2.7)	46.9 (3.0)	40.0 (3.3)	28.2 (3.4)	46.9 (4.1)	65.0 (7.4)
Medicaid or equivalent	21.6 (1.2)	16.6 (1.8)	23.2 (2.4)	20.6 (2.8)	30.1 (2.1)	31.1 (3.2)	20.1 (2.8)	33.4 (2.8)	35.0 (3.2)	34.7 (3.5)	40.7 (4.0)	52.8 (7.8)
Aid to Families with Dependent Children	12.5 (1.0)	12.3 (1.6)	11.8 (1.9)	10.0 (2.1)	14.0 (1.6)	10.2 (2.1)	8.6 (1.9)	9.5 (1.8)	10.3 (2.1)	15.5 (2.7)	12.4 (2.7)	7.4 (4.1)
Public assistance	10.8 (.9)	11.1 (1.5)	9.9 (1.7)	8.0 (1.9)	11.8 (1.5)	9.8 (2.0)	5.3 (1.6)	4.2 (1.2)	7.4 (1.8)	9.6 (2.2)	9.6 (2.4)	4.3 (3.2)
Food stamps	23.7 (1.2)	22.5 (2.0)	22.9 (2.4)	23.7 (2.9)	28.3 (2.0)	18.9 (2.7)	18.4 (2.7)	15.3 (2.1)	19.9 (2.7)	20.6 (3.0)	19.8 (3.2)	11.6 (5.0)
Other benefits	11.4 (.9)	12.5 (1.6)	10.9 (1.8)	11.9 (2.2)	9.2 (1.3)	8.1 (1.9)	11.0 (2.2)	8.6 (1.7)	9.2 (2.0)	12.0 (2.4)	10.8 (2.5)	8.3 (4.3)
None of these benefits	50.1 (1.4)	56.4 (2.4)	51.7 (2.9)	56.2 (3.4)	35.5 (2.2)	43.0 (3.4)	54.0 (3.5)	35.4 (2.8)	36.5 (3.3)	41.5 (3.6)	35.0 (3.8)	25.0 (6.6)
N	6,631	919	586	449	863	714	669	760	635	408	542	75

Note: Standard errors are in parentheses.

Source: Parent interviews.

Table D3-1

CHARACTERISTICS OF REGULAR SCHOOLS ATTENDED BY SECONDARY STUDENTS WITH DISABILITIES

		Primary Disability Category									
School Characteristics	All Conditions	Learning Disabled	Emotionally Disturbed	Speech Impaired	Mentally Retarded	Visually Impaired	Hard of Hearing	Deaf	Orthopedically Impaired	Other Health Impaired	Multiply Handicapped
Percentage of students who attended schools in 1986-87 that were:											
High schools (grades 9/10 to 12)	70.5 (1.2)	70.5 (2.1)	77.4 (2.8)	73.7 (3.0)	65.7 (2.4)	78.8 (3.5)	78.9 (3.0)	81.7 (3.7)	84.3 (2.7)	73.9 (3.9)	59.9 (6.1)
Middle schools (grades 6/7 to 8/9)	8.5 (.9)	7.9 (1.3)	8.5 (1.9)	10.1 (2.0)	9.4 (1.6)	6.9 (2.3)	9.3 (2.5)	6.6 (2.5)	11.7 (2.4)	13.3 (2.8)	13.2 (4.5)
Other	21.0 (1.1)	21.6 (1.9)	14.1 (2.1)	16.2 (2.6)	24.9 (2.0)	14.3 (3.3)	11.8 (2.7)	11.7 (3.4)	5.6 (1.9)	12.8 (2.7)	26.9 (5.2)
N	4,211	738	420	397	651	366	502	231	419	286	194
Average percentage of minority students in the school	28.8 (1.0)	27.9 (1.5)	28.6 (1.9)	37.1 (2.4)	28.2 (1.6)	32.6 (2.8)	34.0 (2.5)	30.7 (2.7)	33.5 (2.4)	46.4 (3.2)	34.3 (4.0)
N	4,795	908	503	443	740	387	540	267	479	306	214
Percentage in schools with more than half of students coming from low-income households	18.2 (1.2)	16.6 (1.8)	15.5 (2.3)	27.8 (3.1)	22.3 (2.0)	15.1 (3.2)	16.4 (2.9)	7.4 (2.5)	13.6 (2.6)	27.9 (3.8)	20.9 (4.9)
N	4,813	916	506	444	754	383	540	264	481	303	214

Note: Standard errors are in parentheses.

Source: Survey of Secondary Special Education Programs.

Table D3-2

COMPARISON OF UNWEIGHTED MEANS AND CORRELATIONS WITH PERCENTAGE OF TIME IN REGULAR EDUCATION FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE MODEL OF REGULAR EDUCATION INTEGRATION

	Unweighted Means for:		Correlations with Time in Regular Education for:	
Analytic Variables	Full Sample†	Multivariate Model§	Full Sample	Multivariate Model
Disability characteristics				
Emotionally disturbed	10.4	10.0	-.00	.00
Speech impaired	7.0	6.4	.21***	.20***
Mildly/moderately mentally retarded	15.7	12.8	-.21***	-.21***
Deaf	6.5	7.9	-.05***	-.09***
Hard of hearing	9.1	9.4	.09***	.10***
Visually impaired	7.5	8.1	.12***	.14***
Orthopedically impaired	7.8	9.3	-.04**	-.05*
Other health impaired	6.9	6.1	.04	.03
Severely impaired (e.g., multiply handicapped, SMR)	7.0	4.8	-.29***	-.20***
Functional ability scale score	13.7	14.0	.44***	.37***
Self-care ability scale score	11.4	11.4	.25***	.19***
IQ score	84.8	86.8	.51***	.47***
Student characteristics				
Age in most recent school year	17.6	17.6	-.14***	-.12***
Male	62.0	62.1	.02	.01
Older than typical age-for-grade	76.2	74.6	-.19***	-.18***
Minority	33.4	30.6	-.08***	-.10***
Household income scale score	3.1	3.1	.16***	.17***
Urban residence	38.8	38.0	-.05***	-.07***
Rural residence	25.1	23.3	.01	.01
Single parent household	32.1	31.3	-.07***	-.10***
Attended school in:				
New England	2.0	1.3	.04**	.02
Midatlantic	10.7	10.6	-.08***	-.10***
South Atlantic	19.8	20.2	.10***	.06**
East North Central	18.0	18.7	-.06***	-.06**
East South Central	5.9	6.5	-.05**	-.04
West South Central	12.5	10.3	-.02	.02
Mountain	9.9	10.7	-.04**	-.03
Pacific	15.8	15.0	.05***	.06**
School program characteristics				
Percent time in regular education	56.1	60.6		
Took occupationally-oriented vocational education	47.3	60.5	.18***	.15**
Took nonacademic courses	84.5	85.3	.06***	.10***
School enrollment	1,236	1,278	.04**	-.00
Low income student enrollment scale	2.4	2.3	-.07***	-.07***
Compensatory education programs available	85.2	86.1	.01	-.04
Mainstreamed students expected to keep up in regular education classes without help	35.3	35.5	-.04**	-.05*
School provides regular education teachers with mainstreamed students:				
Special materials	58.8	60.0	-.00	.00
Inservice training on mainstreaming	47.0	47.0	.08***	.07***
Classroom aides	38.6	40.2	.00	-.01
Smaller class size	13.2	14.1	.05**	.05*

Note: Significance levels for correlations involving the full sample are expected to be higher generally than significance levels for the models because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

† Sample sizes range from 4,123 (for youth being older than the typical age-for-grade, requiring a school record abstract and being assigned to a grade level) to 5,479 (disability categories, defined for all youth).

§ N=2,227.

* p < .05; ** p < .01; *** p < .001.

Table D4-1

COMPARISON OF UNWEIGHTED MEANS FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN MULTIVARIATE ANALYSES OF SCHOOL PERFORMANCE

	Mean Values for Students in:			
Analytic Variables	Full* Sample	Absenteeism Analysis	Course Failure Analysis	Grade Retention Analysis
Dependent measures				
Average days absent	12.8	12.5	12.4	11.6
Received failing grade	21.8	N/A	23.4	23.3
Was not promoted	6.7	N/A	N/A	6.2
Disability characteristics				
Disability category				
Emotionally disturbed	8.7	8.7	8.7	7.1
Speech impaired	5.4	4.6	4.9	4.6
Mildly/moderately mentally retarded	13.4	10.5	10.2	9.5
Deaf	11.8	17.4	17.0	17.2
Hard of hearing	8.0	7.9	8.1	8.5
Visually impaired	10.1	11.8	11.7	12.0
Orthopedically impaired	7.6	7.9	8.1	9.2
Other health impaired	6.7	5.5	5.6	5.9
Severely impaired (e.g., multiply handicapped, SMR)	14.0	5.7	6.5	6.7
Functional ability scale score	12.9	13.4	13.7	13.6
Self-care ability scale score	11.0	11.4	11.3	11.3
IQ score	81.7	87.4	87.2	86.7
Individual characteristics				
Age in most recent school year	17.6	17.4	17.4	16.9
Youth was male	60.8	60.1	60.4	60.0
Youth was minority	35.6	32.2	32.2	32.3
Household characteristics				
Annual income scale score	3.0	3.0	3.1	3.0
Single parent household	33.7	32.0	31.9	30.8
Community characteristics				
Attended school in:				
Urban area	41.5	38.6	39.6	39.2
Rural area	23.1	25.1	23.9	24.0
Student behaviors				
Had disciplinary problems	9.3	8.4	8.4	6.4
Belonged to school/community group	43.8	48.0	48.2	50.4
Frequency saw friends (5-item scale)	3.0	3.2	3.2	3.2
Had a job in the past year	56.4	61.8	61.7	58.3
Previous academic achievement (older than age-for-grade)	77.0	75.7	75.3	76.2
School characteristics				
Attended special school	26.4	22.9	21.7	22.0
School enrollment	943.6	991.8	1,042.6	1,026.8

Table D4-1 (Concluded)

COMPARISON OF UNWEIGHTED MEANS FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN MULTIVARIATE ANALYSES OF SCHOOL PERFORMANCE

	Mean Values for Students in:			
Analytic Variables	Full* Sample	Absenteeism Analysis	Course Failure Analysis	Grade Retention Analysis
School policies				
Mainstreamed students expected to keep up without help	23.5	25.6	27.3	27.3
Teachers with mainstreamed students routinely provided:				
Special materials	40.3	24.2	46.6	47.8
Inservice training	32.4	35.9	37.0	36.5
Classroom aides	26.7	30.9	32.5	32.3
Smaller class size	8.7	9.9	10.0	9.6
Students' school programs				
Student took:				
Occupationally-oriented vocational education	46.2	63.6	63.1	61.4
Nonacademic classes	86.5	86.3	86.2	89.2
Student received from the school in past year				
Help from a tutor/reader/interpreter	22.7	29.5	29.2	30.4
Counseling/therapy	21.2	24.3	23.8	24.0
Percent time in regular education	43.1	50.6	60.0	50.1
Number of courses for which grades received	5.3	N/A	6.4	N/A
N	4,709-6,573	2,964	2,744	1,713

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* The sample includes students in school in the past 12 months. Sample sizes range from 4,161 (for older than age-for grade calculated for those assigned to a grade level only) to 6,573 (disability category, defined for all youth). The grade retention variable further limits the sample for that variable (and model) to students at grade 11 or less and assigned to a grade level (N=2,813 for that variable only). There are few significant differences between means for the full sample and those for the subsamples used for the multivariate analyses. However, because the school performance models include the student being older than the typical age-for-grade, only students assigned to a grade level are included, resulting in the lower percentage of youth with severe impairments and a higher percentage of youth taking occupationally oriented vocational education, for example. Correlations (Table D4-2) reveal few differences; even so, conservatively, analyses should be considered as generalizing to students assigned to grade levels.

Table D4-2

COMPARISON OF CORRELATIONS BETWEEN INDEPENDENT VARIABLES AND MEASURES OF SCHOOL PERFORMANCE FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE ANALYSES

	Correlations with Absenteeism for:		Correlations with Course Failure for:		Correlations with Grade Retention for:	
Analytic Variables	Full* Sample	Absenteeism Analysis	Full* Sample	Failure Analysis	Full* Sample	Retention Analysis
School performance						
Average days absent	1.00	1.00	.27***	.29***	.18***	.20***
Received failing grade	N/A	N/A	1.00	1.00	.30***	.25***
Was not promoted	N/A	N/A	N/A	N/A	1.00	1.00
Disability characteristics						
Disability category						
Emotionally disturbed	.08***	.07***	.14***	.13***	.07***	.06**
Speech impaired	-.05***	-.06**	.08***	.06**	.02	-.01
Mildly/moderately mentally retarded	.02	.01	-.01	-.02	.02	.03
Deaf	-.10***	-.10***	-.10***	-.13***	-.09***	-.10***
Hard of hearing	-.04**	-.05*	-.00	.01	-.05**	-.04
Visually impaired	-.06***	-.05*	-.03	-.06**	.01	.01
Orthopedically impaired	.02	.02	-.04**	-.03	.01	.03
Other health impaired	.04*	.06**	-.01	-.02	.03	.01
Severely impaired (e.g., multiply handicapped, SMR)	-.00	-.00	-.16***	-.09***	.01	.01
Functional mental skills scale score	.01	.03	.20***	.13***	.02	.02
Self-care ability scale score	-.05**	-.05**	.17***	.11***	-.04	-.06*
IQ score	-.02	-.03	.12***	.03	-.05**	-.05*
Individual characteristics						
Age in most recent school year	.02	.02	-.11***	-.09***	.04*	.05*
Youth was male	.00	.02	.08***	.10***	.01	.01
Youth was minority	.08***	.10***	.08***	.08***	.06**	.05*
Household characteristics						
Household income scale score	-.14***	-.16***	-.07***	-.09***	-.04*	-.03
Single parent household	.12***	.15***	.05**	.06**	.04*	.03
Community characteristics						
Urban residence	.12***	.13***	.04**	.07***	.04*	.06**
Rural residence	-.07***	-.08***	-.01	-.03	-.04	-.05*
Student behaviors						
Belonged to school/community group in the past year	-.16***	-.16***	-.09***	-.12***	-.05**	-.03
Had disciplinary problems	.18***	.22***	.16***	.14***	.10***	.15***
Frequency of seeing friends	.04*	.06**	.17***	.12***	-.02	-.03
Previous academic achievement (older than age-for-grade)	.06***	.00	.02	.01	.06**	.05*
Had a job in past year	-.04*	-.03	.00	-.03	-.04	-.04
School characteristics						
Attended special school	-.05***	-.04	-.21***	-.16***	-.05**	-.04
School enrollment	.03**	.01	.14***	.10***	.08***	.06**

Table D4-2 (Concluded)

COMPARISON OF CORRELATIONS BETWEEN INDEPENDENT VARIABLES AND MEASURES OF SCHOOL PERFORMANCE FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE ANALYSES

	Correlations with Absenteeism for:		Correlations with Course Failure for:		Correlations with Grade Retention for:	
Analytic Variables	Full* Sample	Absenteeism Analysis	Full* Sample	Failure Analysis	Full* Sample	Retention Analysis
School policies						
Mainstreamed students expected to keep up without help	.04**	.04	.12***	.08***	.04*	.04
Teachers with mainstreamed students routinely provided:						
Special materials	.03	.01	.09***	.06**	.02	-.01
Inservice training	-.01	-.01	.12***	.09***	.04	.02
Classroom aides	-.01	-.02	.04**	.03	-.03	-.05*
Smaller class size	-.02	-.03	.02	.00	.02	.03
Students' school programs						
Student took:						
Occupationally oriented vocational education	-.02	-.06**	.03	-.02	-.04*	-.08***
Nonacademic classes	.01	-.02	.05**	.06**	.02	.01
Student received:						
Help from tutor/reader/interpreter	-.06***	-.06**	-.06***	-.07**	-.04*	-.02
Counseling/therapy	.06***	.08***	-.01	.00	.04*	.06**
Percent time in regular education	-.02	-.04	.24***	.29***	.03	-.01
Number of courses for which grades received	N/A	N/A	.24***	.13***	N/A	N/A
N	4,161-6,573	2,194	4,161-6,573	2,401	2,813-4,872	1,713

Note: Significance levels for correlations involving the full sample are expected to be higher generally than significance levels for the models because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* p < .05.

** p < .01.

*** p < .001.

Table D4-3

COEFFICIENTS FOR MULTIVARIATE ANALYSES OF SCHOOL PERFORMANCE

	Coefficients for:		
Analytic Variables	Absenteeism Analysis	Course Failure Analysis	Grade Retention Analysis
Other aspects of school performance			
Student absenteeism		.05***	.02**
Student failed one or more courses			1.94***
Disability characteristics			
Youth classified as the following (rather than learning disabled):			
Emotionally disturbed	-1.54	.28	.15
Speech impaired	-4.88***	.02	-.20
Mildly/moderately mentally retarded	-1.40	-.34	-.08
Deaf	-5.43***	-.83***	-1.62*
Hard of hearing	-4.59***	-.42	-.94
Visually impaired	-3.29**	-.72**	.20
Orthopedically impaired	-1.98	-.61*	-.36
Other health impaired	1.37	-.80**	-.34
Severely impaired (SMR, multiply handicapped)	-2.84*	-1.07**	-.39
Functional mental skills scale score	.28*	.03	.11
Self-care ability scale score	-.83***	.06	-.18*
IQ score	.04	-.01	-.01
Individual characteristics			
Age in most recent school year	.18	-.11**	.16
Youth was male	-.66	.47***	-.15
Youth was minority	.46	.33*	.02
Household characteristics			
Household income (5 category scale)	-.66***	-.08*	.05
Student was from single-parent household	2.16***	-.06	.07
Community characteristics			
Urban residence	2.13**	.10	.35
Rural residence	-1.29	.07	-.12
Student behaviors			
Has had disciplinary problems	8.71***	.45*	1.15***
Student belonged to school/community group in previous year	-2.58***	-.36**	.35
Frequency of seeing friends (6 category scale)	.60**	.12**	-.16*
Prior academic achievement (older than typical age-for-grade)	.52	.24	.32
Student had a job in previous year	-.29	-.19	-.11
School characteristics			
Attended special school	-.56	-.05	.13
Student enrollment	-.00	.00*	.00

Table D4-3 (Concluded)

COEFFICIENTS FOR MULTIVARIATE ANALYSES OF SCHOOL PERFORMANCE

Analytic Variables	Coefficients for: Absenteeism Analysis	Course Failure Analysis	Grade Retention Analysis
School policies			
Mainstreamed students expected to keep up in regular education classes without help	.85	.13	.26
School provided to regular education teachers with mainstreamed students:			
Special materials for students	.10	-.07	-.34
Inservice training	-.32	.27*	.43
Classroom aides	.31	.04	-.63*
Smaller classes	-.11	-.01	.89*
Students' school programs			
Student took occupationally oriented vocational education	-1.48*	-.17	-.78**
Student took nonacademic courses	-.28	-.02	.12
Percent time in regular education classes	-.01	.01***	-.00
Student received tutoring help	-.62	-.01	.22
Student received counseling/therapy	2.19***	.13	.47
Number of courses in which grades given	NA	.255***	NA

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* $p < .05$.
** $p < .01$.
*** $p < .001$.

Table D5-1

COMPARISON OF UNWEIGHTED MEANS AND CORRELATIONS WITH WHETHER STUDENT DROPPED OUT FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE ANALYSIS OF DROPOUT BEHAVIOR

	Unweighted Means for:		Correlations with Dropout for:	
Analytic Variables	Full† Sample	Dropout Model§	Full Sample	Dropout Model
School performance measures				
Student dropped out	8.1	4.1	1.00	1.00
Average days absent	13.2	12.4	.20***	.18***
Received failing grade	22.1	22.7	.18***	.22***
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	9.5	8.7	.13***	.13***
Speech impaired	5.5	5.2	.00	.01
Mildly/moderately mentally retarded	0.5	10.5	.04**	.02
Deaf	6.6	16.8	-.06***	-.07***
Hard of hearing	7.8	8.0	-.03**	-.05**
Visually impaired	6.2	11.2	-.03**	-.03
Orthopedically impaired	7.5	7.9	-.04**	-.03
Other health impaired	6.5	5.5	-.01	-.02
Severely impaired (e.g., multiply handicapped, SMR)	12.1	5.9	-.04**	-.03
Functional mental skills scale score	13.2	13.8	.02	.02
Self-care ability scale score	11.1	11.4	.03*	.03
IQ score	83.2	87.6	.01	-.01
Individual characteristics				
Age in most recent school year	17.6	17.5	.07***	.05**
Youth was male	61.1	60.9	.03*	.03
Youth was a minority	35.1	31.4	.00	-.01
Household characteristics				
Annual income (5 point scale)	3.0	3.1	-.09***	-.05**
Youth was from single-parent household	34.0	32.3	.05***	.03
Community characteristics				
Youth attended school in following area (not suburban):				
Urban	40.3	38.6	.01	-.00
Rural	23.8	24.0	.03**	.02
Youth behaviors				
Has had disciplinary problems	10.9	9.1	.26***	.25***
Belonged to school/community group in year in which student dropped out	37.8	43.0	-.16***	-.13***
Frequency of seeing friends (6 category scale)	3.1	3.2	.03*	.03
Student was older than typical age-for-grade	76.7	75.3	.07***	.05**
Had a job in year in which student dropped out	48.2	63.7	-.08***	-.02

Table D5-1 (Concluded)

COMPARISON OF UNWEIGHTED MEANS AND CORRELATIONS WITH WHETHER STUDENT DROPPED OUT FOR STUDENTS IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE ANALYSIS OF DROPOUT BEHAVIOR

	Unweighted Means for:		Correlations with Dropout for:	
Analytic Variables	Full† Sample	Dropout Model§	Full Sample	Dropout Model
School characteristics	48.2	63.7	-.08***	-.02
Attended special school	23.9	20.5	-.04***	-.03
Student enrollment	974	1,040	.00	-.03
School policies				
Mainstreamed students expected to keep up in regular classes without help	25.1	28.0	-.00	.01
School provided to regular education teachers with mainstreamed students:				
Special materials for students	42.0	47.2	-.00	.00
Inservice training	33.6	37.5	-.00	.03
Classroom aides	27.3	32.7	-.02	-.02
Smaller classes	9.3	10.4	.02	.02
Students' school programs				
Student took:				
Occupationally oriented vocational education	45.8	63.7	-.08***	-.05**
Nonacademic course	85.1	85.0	-.03*	-.00
Student received:				
Help from tutor/reader/interpreter	19.1	26.1	-.09***	-.09***
Personal counseling/therapy	17.5	21.2	-.05***	-.04*
Percent time in regular education	45.2	51.8	-.01	.01

Note: Significance levels for correlations involving the full sample are expected to be higher generally than significance levels for the models because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels. The subsample of students included in the multivariate analysis had higher functional abilities and IQ and was significantly less likely to be severely impaired than students in the full sample, because the multivariate analysis includes a measure of whether students were older than the typical age for their grade level, requiring that all students in the analysis be assigned to a grade level. As pointed out in Chapter 4, focusing on students assigned to a grade level "creams" the special education student population, as demonstrated again in the multivariate analysis. Variables related to functional ability differences also differ between the full sample and the model e.g., participation in vocational education, percentage of instructional time in regular education. Correlations between independent variables and the dependent variable, however, are very similar for the two samples. Nevertheless, conservatively, the findings of this analysis should be considered as generalizable to students assigned to a grade level.

† Sample sizes range from 4,897 (for youth being older than the typical age-for-grade, requiring a school record abstract and being assigned to a grade level) to 7,757 (disability category).

§ N=2,668

* p < .05.

** p < .01.

*** p < .001.

Table D6-1

COMPARISON OF MEANS AND CORRELATIONS FOR YOUTH IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE ANALYSIS OF SOCIAL ISOLATION

	Mean Values for Youth in:		Correlations with Social Isolation for:	
Analytic Variables	Full Sample	Social Isolation Model	Full Sample	Social Isolation Model
Dependent measure				
Was socially isolated	21.2	20.4	—	—
Disability characteristics				
Category was the following (not learning disabled)				
Emotionally disturbed	7.9	6.9	-.07***	-.07***
Speech impaired	5.1	3.8	-.07***	-.06***
Mentally retarded	12.7	12.1	.04**	.05**
Deaf	11.7	14.3	-.07***	-.09***
Hard of hearing	8.4	8.7	-.05**	-.07***
Visually impaired	10.5	10.0	-.01	-.01
Orthopedically impaired	8.0	9.1	.06***	.09***
Other health impaired	7.0	6.6	.08***	.08***
Severely impaired (e.g., multiply handicapped, SMR)	14.8	14.2	.27***	.28***
Functional mental skills scale score	12.7	12.9	-.34***	-.35***
Self-care ability scale score	10.9	10.9	-.35***	-.36***
IQ	81.2	80.6	-.24***	-.28***
Individual characteristics				
Age	17.0	17.1	.12***	.14***
Male	60.4	60.4	-.06***	-.07***
Minority	36.8	34.3	-.01	-.02
Household characteristics				
Household income scale score	3.4	3.5	.01	-.01
Single-parent household	34.1	32.2	-.03*	-.02
Community characteristics				
Youth attended school in following area (not suburban):				
Urban	42.0	40.1	.01	-.00
Rural	22.9	22.5	-.01	.00
Student activities				
Had disciplinary problems	7.2	6.2	-.07***	-.08***
Employment status scale	2.1	2.2	-.16***	-.15***
School/program characteristics				
Attended special school	26.5	27.5	.14***	.14***
Percent time in regular education	42.6	43.1	-.23***	-.24***
School enrollment	929.2	954.3	-.09***	-.09***
N	3,583-4,929	2,712		

Note: The sample includes students in school at the time of the interview. Sample sizes range from 3,583 (for percentage of day spent in regular education) to 4,929 (disability category, defined for all youth).

Significance levels for correlations involving the full sample are expected to be higher generally then significance levels for the model because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* $p < .05$

** $p < .01$

*** $p < .001$

Table D6-2

COMPARISON OF MEANS AND CORRELATIONS FOR YOUTH IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE MODEL OF FREQUENCY OF SEEING FRIENDS

Analytic Variables	Mean Values for Youth in: Full Sample	Mean Values for Youth in: Frequency of Seeing Friends	Correlations with Seeing Friends Frequently for: Full Sample	Correlations with Seeing Friends Frequently for: Frequency of Seeing Friends
Dependent measure				
Saw friends often	33.6	32.5		
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	8.7	7.8	.09***	.06**
Speech impaired	5.7	4.5	.01	.01
Mentally retarded	11.1	11.2	-.01	.00
Deaf	12.9	15.8	-.01	.01
Hard of hearing	9.7	9.6	-.02	-.02
Visually impaired	10.8	10.2	-.01	-.00
Orthopedically impaired	7.8	7.8	-.07***	-.08***
Other health impaired	6.6	5.7	-.02	-.02
Severely impaired (e.g., multiply handicapped, SMR)	9.8	9.2	-.05**	-.06**
Functional mental skills scale score	13.4	13.5	.08***	.10***
Self-care ability scale score	11.3	11.3	.10***	.11***
IQ	84.9	84.0	.06***	.07**
Individual characteristics				
Age	16.9	16.9	-.04*	-.04
Male	61.5	62.1	.11***	.12***
Minority	37.1	34.9	.00	.04
Household characteristics				
Household income scale score	3.4	3.5	-.05**	-.06**
Single-parent household	34.8	32.7	.04*	.05*
Community characteristics				
Youth attended school in following area (not suburban):				
Urban	43.5	40.0	.02	.02
Rural	21.3	22.4	-.01	-.00
Student activities				
Had disciplinary problems	8.1	7.1	.09***	.11***
Employment status scale	2.3	2.4	.00	.00
School/program characteristics				
Attended special school	22.6	24.2	.00	.01
Percent time in regular education	47.7	47.9	.02	.01
School enrollment	997.2	991.9	-.02	-.01
N	2,332-3,300	2,158		

Note: The sample includes students in school at the time of the interview who saw friends at least once a week. Sample sizes range from 2,332 (for percentage of day spent in regular education) to 3,300 (disability category, for all youth).

Significance levels for correlations involving the full sample are expected to be higher generally then significance levels for the model because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* p < .05

** p < .01

*** p < .001

Table D6-3

COMPARISON OF MEANS AND CORRELATIONS FOR YOUTH IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE MODEL OF GROUP MEMBERSHIP

	Mean Values for Youth in:		Correlations with Group Membership for:	
Analytic Variables	Full Sample	Group Membership Model	Full Sample	Group Membership Model
Dependent measure				
Belonged to group	43.8	48.2		
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	8.7	8.6	-.07***	-.09***
Speech impaired	5.4	5.3	.05***	.03
Mentally retarded	13.4	10.6	-.05***	-.07***
Deaf	11.8	16.6	.08***	.09***
Hard of hearing	8.0	9.2	.01	.01
Visually impaired	10.1	10.9	.09***	.08***
Orthopedically impaired	7.6	7.9	-.00	.01
Other health impaired	6.7	6.3	-.02	-.01
Severely impaired (e.g., multiply handicapped, SMR)	14.0	6.1	-.09***	-.03
Functional mental skills scale score	12.9	13.8	.12***	.05**
Self-care ability scale score	11.0	11.4	.11***	.04*
IQ	81.7	87.1	.14***	.17***
Individual characteristics				
Male	60.8	60.2	-.03*	-.01
Older than age-for-grade	77.1	76.0	-.07***	-.08***
Minority	35.6	33.7	-.10***	-.13***
Household characteristics				
Household income scale score	3.4	3.5	.15***	.19***
Single-parent household	32.3	33.7	-.07***	-.09***
Community characteristics				
Youth attended school in following area (not suburban):				
Urban residence	41.5	40.5	-.12***	-.13***
Rural residence	23.1	22.6	.03	.03
Student activities				
Had disciplinary problems	9.3	8.6	-.08***	-.08***
Employment status scale	2.2	2.5	.11***	.11***
School/program characteristics				
Attended special school	2.6	19.7	.04**	.08**
Percent time in regular education	43.1	52.2	.10***	.08***
School enrollment	943.6	1070.9	-.01	-.04*
N	4,161- 6,573	2,925		

Note: The sample includes students in school in the past 12 months. Sample sizes range from 4,161 (for older than age-for-grade calculated for those assigned to a grade level only) to 6,573 (disability category, defined for all youth). The grade retention variable further limits the sample for that variable (and model) to students at grade 11 or less and assigned to a grade level. There are few significant differences between means for the full sample and those for the sub sample used for the multivariate analyses. However, because the school performance models include the student being older than the typical age-for-grade, only students assigned to a grade level are included, resulting in the lower percentage of youth with severe impairments and a higher percentage of youth spending more time in regular education classes.

Note: Significance levels for correlations involving the full sample are expected to be higher generally then significance levels for the model because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* $p < .05$

** $p < .01$

*** $p < .001$

Table D6-4

COMPARISON OF MEANS AND CORRELATIONS FOR YOUTH IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE MODEL OF HAVING EVER BEEN ARRESTED

Analytic Variables	Mean Values for Youth in: Full Sample	Mean Values for Youth in: Arrest Model	Correlations with Arrest for: Full Sample	Correlations with Arrest for: Arrest Model
Dependent measure				
Had been arrested	7.8	7.7		
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	9.3	8.7	.23***	.23***
Speech impaired	5.4	5.3	-.00	.00
Mentally retarded	13.4	12.3	-.01	-.01
Deaf	11.8	12.7	-.06***	-.06***
Hard of hearing	7.5	8.2	-.03*	-.03*
Visually impaired	9.7	10.1	-.07***	-.07***
Orthopedically impaired	7.4	8.0	-.06***	-.05***
Other health impaired	6.5	7.0	-.03*	-.02*
Severely impaired (e.g., multiply handicapped, SMR)	13.6	13.0	-.07***	-.07***
Functional mental skills scale score	13.0	13.0	.08***	.09***
Self-care ability scale score	11.0	11.0	.12***	.11***
IQ	82.2	83.2	.06***	.06***
Individual characteristics				
Age	18.1	18.1	.03*	.03**
Male	61.3	60.5	.16***	.16***
Minority	35.5	35.6	.04***	.05***
Household characteristics				
Household income scale score	3.4	3.4	-.05***	-.05***
Single-parent household	34.1	34.2	.06***	.07***
Community characteristics				
Youth attended school in following area (not suburban):				
Urban	40.6	42.5	.02	.02
Rural	24.0	22.3	-.01	-.00
N	6,649- 8,408	6,470		

Note: The sample includes all NLTS youth. Sample sizes range from 6,649 (for household income scale score) to 8,408 (disability category for all youth).

Significance levels for correlations involving the full sample are expected to be higher generally then significance levels for the model because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* p < .05

** p < .01

*** p < .001

Table D7-1

COMPARISON OF MEANS AND CORRELATIONS FOR YOUTH IN THE TOTAL SAMPLE AND THOSE IN THE MULTIVARIATE MODEL OF INDEPENDENT LIVING

	Mean Values for Youth in:		Correlations with Youth in:	
Analytic Variables	Full Sample	Living Independently Model	Full Sample	Living Independently Model
Dependent measure				
Lived independently	11.4	10.6		
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	11.1	8.5	.03	.03
Speech impaired	5.9	6.2	.01	-.00
Mentally retarded	14.5	13.2	-.09***	-.10***
Deaf	12.2	16.4	.08***	.07*
Hard of hearing	6.3	6.6	.01	.00
Visually impaired	8.7	10.0	.07***	.09**
Orthopedically impaired	6.5	6.7	-.05**	-.06*
Other health impaired	5.7	6.4	-.02	.00
Severely impaired (e.g., multiply handicapped, SMR)	11.9	8.6	-.11***	-.08**
Functional mental skills scale score	13.3	13.6	.10***	.06*
Self-care ability scale score	11.1	11.2	.11***	.07**
IQ	83.6	86.2	.15***	.11***
Individual characteristics				
Age	19.7	19.9	-.02	-.05
Male	62.3	60.7	-.02	-.05
Married	4.2	3.3	.47***	.45***
Minority	33.4	29.4	-.04*	-.03
Household characteristics				
Household income scale score	3.5	3.7	-.00	-.02
Single-parent household	30.7	34.2	-.04*	-.02
Community characteristics				
Youth attended school in following area (not suburban):				
Urban	38.7	36.6	-.05**	-.02
Rural	25.8	24.7	-.04*	.03
Student activities				
High school graduate	59.9	80.2	.03	-.01
Aged out	16.5	11.9	-.06**	-.06*
Total wage	49.5	57.2	.10***	.08**
School/program characteristics				
Attended special school	26.0	25.4	-.01	.01
Attended 4-year college	4.7	6.3	.09***	.09***
Attended community or vocational college	17.9	18.7	.05*	.07*
Took life skills training	45.8	50.2	-.06***	-.05*
N	1,995-3,349	1,404		

Note: The sample includes youth out of school at the time of the interview. Sample sizes range from 1,995 (for percentage of youth married) to 3,349 (disability category, defined for all youth).

Significance levels for correlations involving the full sample are expected to be higher generally then significance levels for the model because of the larger sample size involved with the full sample of students. Readers should focus on the magnitude of the coefficients, not merely significance levels.

* $p < .05$

** $p < .01$

*** $p < .001$

Table D8-1

UNWEIGHTED MEANS AND CORRELATIONS FOR THE FULL SAMPLE AND THE SUBSET OF YOUTH IN THE MULTIVARIATE EMPLOYMENT ANALYSIS

Variable	Unweighted Means: Full Sample	Unweighted Means: Analysis Subset	Correlation with Employment: Full Sample	Correlation with Employment: Analysis Subset
Dependent measure				
Youth was currently competitively employed	.4	.4	—	—
Disability characteristics				
Category was the following (not learning disabled):				
Emotionally disturbed	.1	.1	.08***	.06*
Speech impaired	.1	.1	.09***	.14***
Mildly/moderately mentally retarded	.2	.2	-.06**	-.09**
Deaf	.1	.2	-.05*	-.07**
Hard of hearing	.1	.1	.06**	.08**
Visually impaired	.1	.1	-.08***	-.08**
Orthopedically impaired	.1	.1	-.14***	-.16***
Other health impaired	.1	.1	-.05**	-.04
Severely impaired (e.g. multiply handicapped, SMR)	.1	.1	-.17***	-.16***
Functional mental skills score	13.4	13.5	.33***	.32***
Self-care ability score	11.1	11.2	.30***	.31***
Individual characteristics				
Age	19.8	19.8	-.15***	-.20***
Youth was male	.6	.6	.18***	.14***
Youth was a minority	.3	.3	-.13***	-.14***
Head of household education	2.2	2.2	.09***	.09***
Community characteristics				
Unemployment rate	7.6	7.5	-.06**	-.08**
Youth is in an urban area	.4	.4	-.14***	-.10***
Youth is in an rural area	.3	.3	.02	-.03
Student activities				
Frequency of seeing friends	3.2	3.2	.20***	.19***
Group membership	.3	.4	.04*	.09**
School characteristics				
Youth graduated from high school	.6	.8	.15***	.17***
Youth aged out of high school	.2	.1	-.15***	-.19***
Youth took at least 1 vocational education course	.6	.8	.12***	.13***
Had work experience as part of vocational education	.1	.1	.10***	.10***
Percent of time in regular education	45.3	45.9	.31***	.29***
Youth attended special school	.3	.3	-.25***	-.23***
Youth left high school 1-2 years ago	.5	.4	.03	.01

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* $p < .05$.

** $p < .01$.

*** $p < .001$.

575

Table D9-1

TYPES OF POSTSECONDARY SCHOOLS ATTENDED BY YOUTH WITH DISABILITIES

	Percentage Attending:				
Disability Category	4-Year College Only	2-Year College Only	Vocational/ Trade School Only	Mixed	N
All conditions	1.4 (.5)	3.5 (.8)	9.0 (1.3)	.4 (.3)	2,557
Learning disabled	1.5 (.9)	3.9 (1.4)	9.6 (2.2)	.4 (.5)	429
Emotionally disturbed	.5 (.6)	3.2 (1.6)	10.8 (2.8)	.3 (.5)	284
Speech impaired	3.9 (2.3)	10.8 (3.7)	9.4 (3.4)	2.2 (1.8)	184
Mentally retarded	.2 (.4)	.7 (.6)	7.1 (1.9)	.3 (.4)	354
Visually impaired	13.6 (3.8)	8.2 (3.0)	7.2 (2.9)	1.3 (1.2)	236
Hard of hearing	4.7 (2.5)	12.4 (3.9)	8.3 (3.3)	.4 (.7)	223
Deaf	8.9 (2.6)	12.8 (3.1)	11.3 (2.9)	1.4 (1.1)	302
Orthopedically impaired	4.2 (2.5)	8.4 (3.4)	6.4 (3.0)	.0 (.0)	218
Other health impaired	6.0 (3.3)	9.5 (4.0)	8.8 (3.9)	.6 (1.1)	130
Multiply handicapped	.6 (1.2)	1.7 (2.0)	.8 (1.3)	.0 (.0)	161
Deaf/blind	.0 (.0)	.0 (.0)	9.6 (6.4)	.0 (.0)	36

Note: Standard errors are in parentheses.

Source: Parent Interviews.

Table D9-2

UNWEIGHTED MEANS FOR FACTORS RELATED TO ENROLLING IN POSTSECONDARY SCHOOLS FOR THE FULL SAMPLE OF YOUTH AND THOSE IN MULTIVARIATE ANALYSES

	Unweighted Means	
Characteristics	Full Sample	Multivariate Analyses
Postsecondary school enrollment		
Any postsecondary education	22.8	22.8
4-year college/university	4.9	5.6
2-year/junior college	9.6	9.2
Vocational/trade school	9.1	9.0
Disability characteristics		
Category was the following (not learning disabled):		
Emotionally disturbed	11.5	10.8
Speech impaired	7.4	7.1
Mildly/moderately mentally retarded	14.1	15.3
Visually impaired	7.6	7.2
Hard of hearing	8.0	7.8
Deaf	9.7	9.0
Orthopedically impaired	7.2	6.1
Other health impaired	7.0	5.8
Severely impaired (e.g., multiply handicapped, deaf/blind)	7.4	6.5
Functional mental skills	13.8	14.0
Self-care skills	11.3	11.4
IQ score	86.9	85.5
Individual characteristics		
Youth's age	19.8	19.6
Youth was male	62.4	62.0
Youth was minority	33.2	27.5
Household characteristics		
Head of household's education (5 category scale)	2.1	2.1
Youth was from single-parent household	33.1	31.7
Community characteristics		
Youth attended school in:		
Urban area	40.7	34.5
Rural area	22.5	26.1
School factors		
Youth was high school graduate	63.4	80.1
Youth aged out of high school	17.8	4.4
Youth out of high school 1 to 2 years	51.0	41.7
Youth took occupationally-oriented vocational education in last year in high school	44.5	64.6
Percentage of time spent in regular education in last year in high school	57.1	57.8
Youth attended special secondary school	9.8	5.2

Table D9-3

CORRELATIONS WITH POSTSECONDARY SCHOOL ENROLLMENT VARIABLES FOR THE FULL SAMPLE OF YOUTH AND THOSE IN EACH MULTIVARIATE ANALYSIS

	Unweighted Correlations with:							
	Any Postsecondary School		4-year College		2-Year College		Vocational/ Trade School	
Characteristics	Full Sample	Analysis Sample	Full Sample	Analysis Sample	Full Sample	Analysis Sample	Full Sample	Analysis Sample
Disability category								
Emotionally disturbed	-.04	-.06	-.06**	-.06	-.04	-.02	.02	-.00
Speech impaired	.04	.05	.03	.04	.02	.06*	.02	-.02
Mildly/moderately mentally retarded	-.15***	-.14***	-.08***	-.10**	-.11***	-.12***	-.04	-.01
Visually impaired	.08***	.08*	.15***	.21***	.06*	.21***	-.03	-.05
Hard of hearing	.03	.02	.02	-.00	.02	-.00	.02	-.01
Deaf	.12***	.11***	.08***	.11***	.09***	.11***	.02	.02
Orthopedically impaired	.02	.01	.03	.01	.02	.01	.02	-.05
Other health impaired	-.02	-.01	.01	-.00	.03	-.00	.03	-.03
Severely impaired (e.g., multiply handicapped, deaf/blind)	-.09***	-.07*	-.06*	-.05	.12***	-.03	-.06*	-.05
Functional mental skills	.16***	.13***	.06**	.05	.05*	.10**	.07**	.07*
Self-care skills	.10***	.09**	.03	.03	-.05*	-.07*	.08***	.06
IQ score	.09**	.22***	.16***	.20***	.14***	.16***	.02	.02
Individual characteristics								
Youth's age	-.04	-.04	-.04	-.02	.02	.01	-.03	-.04
Youth was male	.00	.02	-.04	-.04	.01	.01	.03	.06
Youth was minority	-.02	-.04	-.08***	-.07*	-.01	-.00	.05*	.01
Household characteristics								
Head of household's education	.18***	.18***	.15***	.16***	.17***	.17***	-.01	-.00
Youth was from single-parent household	-.02	-.02	-.02	-.02	-.00	.02	.01	-.02
Community characteristics								
Youth attended school in:								
Urban area	.03	.04	.03	.07*	.02	.07*	-.01	-.00
Rural area	-.10***	-.09**	-.08***	-.10**	-.11***	-.10**	-.11***	.05
School factors								
Youth was high school graduate	.18***	.17***	.14***	.11***	.10***	.11***	.10***	.05
Youth aged out of high school	-.06*	-.08*	-.06**	-.03	-.01	-.03	-.01	-.03
Youth out of high school 1 to 2 years	.07**	.07*	.14***	.18***	.08***	.09**	-.07**	-.10**
Youth took occupationally- oriented vocational ed. in last year in high school	.12***	.17***	.03	.03	.04	.09**	.12***	.13***
Percentage of time spent in regular education in last year in high school	.19***	.21***	.16***	.16***	.17***	.17***	-.01	.02
Youth attended special secondary school	-.03	.02	-.05	-.02	-.00	-.02	-.00	.01

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* p < .05; ** p < .01; *** p < .001.

Table D9-4

COEFFICIENTS FOR FACTORS RELATED TO PROBABILITIES OF YOUTH ENROLLING IN VARIOUS KINDS OF POSTSECONDARY SCHOOLS

Characteristics	Logistic Regression Coefficients for Analyses of: Any Post-secondary School	4-Year College/ University	2-Year Junior College	Trade/ Vocational School
Disability characteristics				
Disability category				
Emotionally disturbed	-.42	.33	.02	-.62
Speech impaired	-.01	.42	.39	-.70
Mildly/moderately mentally retarded	-.58	-6.65***	-1.93	-.70
Visually impaired	.24	2.22***	-.08	-1.20
Hard of hearing	-.45	-.14	-.28	-.74
Deaf	.44	1.98***	.18	-.43
Orthopedically impaired	.00	.89	.57	-1.42
Other health impaired	-.40	-.03	-.15	-.70
Severely impaired (e.g., multiply handicapped, deaf/blind)	-.38	1.68	.24	-1.63
Functional mental skills	.02	-.09	.01	.08
Self-care skills	.05	-.04	.16	-.01
IQ score	.01	.04***	.01	-.00
Individual characteristics				
Youth's age	-.08	-.35	.14	-.11
Youth was male	.17	-.34	.11	.41
Youth was minority	.04	-.95	.22	.43
Household characteristics				
Head of household's education	.29***	.36*	.41***	.05
Youth was from single-parent household	.15	.22	.35	-.16
Community characteristics				
Youth attended school in:				
Urban area	.18	.85*	.34	-.25
Rural area	-.15	-.25	-.52	.17
School factors				
Youth was high school graduate	.91**	9.47***	.97	.50
Youth aged out of high school	.61	10.02***	-6.06	.53
Youth out of high school 1 to 2 years	.52**	3.02***	.66*	-.74**
Youth took occupationally-oriented vocational education in last year in high school	.74***	.08	.42	1.01**
Percentage of time spent in regular education in last year in high school	.01*	.02**	.01**	-.00
Youth attended special secondary school	.75	-.72	1.01	.61
Intercept	-4.01	-12.42	-11.19**	-1.44

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* p < .05.
** p < .01.
*** p < .001.

Table D10-1

COMPARISON OF UNWEIGHTED MEANS AND CORRELATIONS BETWEEN INDEPENDENT VARIABLES AND WHETHER EXITERS WERE ENGAGED DURING THE PRECEDING YEAR, FOR YOUTH OUT-OF-SCHOOL FOR 1 TO 2 YEARS AND FOR THOSE INCLUDED IN THE MULTIVARIATE ANALYSIS

	Mean Values for:		Correlations with Engagement	
	All Youth	Youth in Model	All Youth	Youth in Model
Dependent variable				
Was engaged in the past 12 months	75.3	78.1	1.00	1.00
Disability characteristics				
Disability category				
Emotionally disturbed	11.3	10.0	.022	.002
Speech impaired	5.8	5.1	.013	.019
Mentally retarded	14.1	12.6	-.039	-.075
Visually impaired	7.9	8.9	.011	.051
Hard-of-hearing	5.9	7.0	.055*	.069
Deaf	12.8	14.2	.058*	.056
Orthopedically impaired	6.4	6.5	-.128***	-.165***
Other health impaired	5.8	5.1	-.029	-.010
Severely impaired	9.5	10.3	-.191***	-.176***
Self-care ability	11.1	11.2	.322***	.329***
Functional mental skills	13.4	13.4	.305***	.322***
IQ	84.8	85.4	.246***	.308***
Individual characteristics				
Youth is male	62.6	61.8	.156***	.176***
Youth is minority	35.5	31.8	-.015***	.151***
Age	20.2	20.5	-.059*	-.143***
Youth is not married	93.0	93.4	.062*	.056
Household characteristics				
Household income	2.9	3.0	.184***	.167***
Single-parent household	36.2	34.9	-.110***	-.126***
Community characteristics				
Urban	37.1	33.8	-.088**	-.036
Rural	28.1	27.4	-.001	-.055
School experiences				
Youth received vocational education	42.1	45.5	.233***	.228***
Youth graduated	51.3	65.8	.185***	.231***
Youth aged out	22.3	18.4	-.090***	-.162***
N	1,072 to 1,613	739	905 to 1,613	739

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* p < .05.

** p < .01.

*** p < .001.

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